

## *Impact of Wildlife to Beef Producers in Alberta: Starting the Conversation*

*May 2015*

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### **SUMMARY<sup>1</sup>**

This research was developed to improve the understanding of the interactions between beef producers and wildlife and the financial losses due to the impact because of wildlife (ungulates, carnivores and birds) on beef producers in Alberta. Wildlife impacts include financial losses such as depredation events, forage competition, stored feed loss, property damage, and prevention and management activities. The data was gathered through an online survey for beef producers and was promoted by ABP representatives, local media and word-of-mouth efforts across Alberta. Because it was not possible to randomly select a sub-section of producers, results are at risk of voluntary response bias, whereby the survey may have attracted more individuals who have strong opinions on the issue.

There were 672 survey responses, enough to statistically analyze the results from a provincial perspective but not enough to assess results per ABP zone to better understand regional differences. In addition, the number of responses where producers provided economic values was low, reducing the reliability of the data and the ability to provide a provincial perspective on the total costs of wildlife to producers. Despite these limitations, the survey results provide valuable contextual information about the impact of wildlife on beef producers, and are a good starting point for understanding losses and costs associated with the different types of impacts. In addition, given a total population of 20,000 beef producers in Alberta, 672 responses provide a 99% confidence level with a 5% margin of error, indicating these results (with noted limitations above) are representative of the entire producer population in Alberta.

#### **Understanding the Issue**

The majority of producers in Alberta experience impacts from wildlife, with 81% of survey respondents reporting impacts from ungulates, 74% from carnivores and 44% from birds. Six percent (6%) of producers reported having no issues with wildlife. Although producers experience impacts from wildlife, the majority value and want to see healthy populations of ungulates (83%) and carnivores (75%) on the landscape. In addition, 80% of beef producers feel living with wildlife is a part of doing business. However, a majority of producers (88%) agree that wildlife living amongst and moving through beef operations results in economic impacts to the landowner. When these costs are judged to be too high most producers (81%) feel they need to deal with problem wildlife themselves. Ultimately, 71% of respondents felt that the responsibilities for ensuring healthy wildlife populations are borne unevenly by agricultural landowners.

There was very little agreement amongst producers on whether the current level of economic loss due to wildlife was tolerable with 40% reporting losses as tolerable, 10% reporting losses as neutral and 50% reporting losses are not tolerable. This likely has to do with a multitude of factors impacting individual experiences, personal values, costs of impacts, and species causing the damage.

A further analysis on the total annual percentage of economic loss full-time producers were willing to accept found that half of the producers were willing to accept between 1-5% in financial losses in any given year because of wildlife, while the other half were willing to accept less than 1% in losses. However, it should be noted that within the category of willing to accept less than 1% in financial losses, a number of individuals (25% of respondents) reported they would not accept any economic loss.

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<sup>1</sup> The full report including tables, figures, references and appendices is 126 pages. A copy can be obtained from the Alberta Beef Producers office.

The main concerns relating to wildlife reported by beef producers in Alberta were economic losses (81%), livestock safety (66%) and increases in time required for management (62%). Producers were asked to report wildlife attractants associated with their operations; the top five attractants reported were hay yards (83%), swath grazing (60%), grain bins (38%), dead livestock piles (28%) and silage pits (22%).

To evaluate the key impacts from different wildlife types, we asked producers to identify and quantify impacts from carnivores, ungulates and birds. Each was assessed in separate sections through a series of survey questions specific to the impacts from these species classes.

### Carnivores

Seventy-four percent (74%) of beef producers reported impacts from carnivore species. The species of primary concern was coyote, as 65% of all producers in Alberta experienced impacts from this species specifically. Other species of concern for all producers in Alberta were wolves (31%), cougars (21%) and black bears (19%). Grizzly bears were reported by 14% of producers in Alberta as having an impact.

In Alberta, 64% of beef producers reported experiencing a depredation event. The majority for all beef producers were calf depredation events (60%), cow depredation events (20%), feeder/yearling depredation events (14%) and bull depredation events (4%).

The value of these losses can be cumulative. For example, of the producers who reported depredation events (a subset of all producers in Alberta) the average rate of calf depredation was 2% resulting in an average value loss of \$1,742 per 100 calves annually or the equivalent of \$17 per calf annually. The average rate of depredation for feeders and yearlings for those producers who reported experiencing depredation was 1.5%, equating to an individual producer feeder/yearling value loss of \$1,664 per 100 feeders/yearlings annually or the equivalent of \$17 per feeder/yearling annually. The average rate of depredation for cows for those producers who reported experiencing depredation was 0.5%, equating to an individual producer cow value loss of \$535 per 100 cows annually or the equivalent of \$5 per cow annually.

The total value lost from depredation annually reported only by survey respondents (3.5% of beef producers in Alberta) based on the total number of cattle they reported and the average percent depredation rate equates to just over \$2 million in losses annually. This value significantly underrepresents losses due to carnivore depredation (including coyotes) in Alberta as it is limited to survey respondents only and has not been extrapolated to the provincial level. In addition, indirect impacts associated with sharing the landscape with carnivore species are not accounted.

Beef producers also reported losses due to property damage (e.g., fencing, shed and building damage) and forage competition (e.g., barley, oat and hay losses) although to a much lesser extent than depredation.

The following were reported as concerns producers in Alberta have about the indirect impacts from carnivore species: increased time management (49%), decreased weaning weights (24%), reduced conception rates (24%), and increased rates of disease (15%).

A common finding in this study is the notion that costs are borne unevenly amongst producers, with a small percentage of producers reporting extreme losses. For example, seven percent of individuals who reported experiencing calf depredation reported losses higher than 5% while the average producer in this subset experienced 2% in losses in a given year due to depredation. These cases of extreme loss are important to understand for development of programs that are designed to help maintain tolerance towards wildlife and support coexistence.

To address economic impacts of coexisting with wildlife, the Government of Alberta has developed compensation programs. To address depredation losses, Alberta Environment and Sustainable Resource Development (ESRD) paid out approximately \$200,000 annually to beef producers. However, survey results indicate the majority of

producers who report impacts from depredation (62%) don't report to the Wildlife Predator Compensation Program.

Some of the key reasons for not reporting included the burden of proof being too great, the investment in time not being worth the return, losses not considered high enough to report, impacts not eligible (e.g., coyote depredation event) and a perception that nothing will be done based on past experience. These are areas in current compensation programs where improvements may need to be considered. For example, other programs have addressed issues with verification and underreporting by applying a multiplier to confirmed depredation events.

Beef producers identified a number of management actions they have implemented to reduce access to attractants and improve coexistence with wildlife. The majority of beef producers who reported impacts from carnivores have implemented some form of prevention or attractant management including (in order of highest number of producers): increased time checking on livestock, removal of dead livestock from the landscape, dealing with the problem animals themselves and moving calving grounds closer to home. Interestingly, less than a half of producers had implemented management actions to address impacts from ungulates, such as fencing off stored feed, avoiding use of silage bags and pits, providing an alternative feed source and changing business practices.

#### Ungulates

Beef producers reported that ungulate species were of greater concern than carnivore species in Alberta, with 81% of beef producers reporting impacts associated with ungulates species. Seventy percent (70%) of beef producers in Alberta reported forage competition and 70% reported stored feed loss from ungulates. The primary species of concern for producers impacted by ungulates was white-tailed deer as impacting 60% of beef producers through forage competition and 54% of beef producers through stored feed loss, followed by mule deer impacting 53% of beef producers through forage competition and 48% of beef producers through stored feed loss and elk reported by 39% of beef producers with respect to forage competition and stored feed loss.

Seventy percent (70%) of Alberta beef producers were impacted by ungulates consuming or damaging stored feed with 62% of those producers reporting stored hay loss or damage, 21% of those producers reporting oat loss or damage, 18% of those producers reporting barley loss or damage, and 17% of those producers reporting silage loss or damage. Producers who reported losses or damage of stored hay lost an average of \$2,021 annually. Producers who reported losses or damage of stored oats lost an average of \$1,994 annually. Producers who reported losses or damage of stored barley lost an average of \$2,262 annually. Producers who reported losses or damage of silage lost an average of \$3,113 annually.

Beef producers identified forage crops of concern: in Alberta 62% reported losses of hay crops, 40% reported losses of oat crops and 30% reported losses of barley crops due to forage competition with ungulates. The value of these losses can be cumulative. For example, of the producers who reported losses of hay from forage competition, the average hay value lost for an individual producer was \$3,355 on an average of 450 acres grown annually. For producers who reported losses of oats from forage competition, the average oat value lost for an individual producer was \$3,647 on an average of 154 acres grown annually. For producers who reported losses of barley from forage competition, the average barley value lost for an individual producer was \$5,460 on an average of 256 acres grown annually. The total value lost from forage competition annually reported only by survey respondents (3.5% of beef producers) in Alberta based on the total number of acres reported and the average percent forage competition rate equates to just over \$1.9 million in losses annually. This value significantly underrepresents the loss due to forage competition in Alberta as it is limited to survey respondents only and has not been extrapolated to the provincial level.

The total value of stored feed lost or damaged reported only by survey respondents (representing 3.5% of beef producers) in Alberta and based on the total number of acres reported and the rate of stored feed reported lost or damaged equates to \$621,000 in losses annually. This value significantly underrepresents the loss of stored feed due to ungulates in Alberta as it is limited to survey respondents only and has not been extrapolated to the provincial level.

To address the challenge of losses due to forage competition and stored feed losses with ungulates, the AFSC offers a wildlife compensation for crops and stored feed loss program. Of the 70% of survey respondents who reported experiencing losses due to forage competition or stored feed losses, 80% did not apply for compensation through AFSC. The top four reasons beef producers said they did not report included: a perception the return was not worth the investment in time, losses were deemed acceptable, a perception they needed to be insured to apply for the program, and/or they were not aware of the program.

Despite this low level of reporting, the AFSC paid out over \$5 million dollars due to wildlife damage on crops in Alberta in 2012. This value represents all crops (cereal, forage, and fruit; not just those belonging to identified beef producers) but this study was primarily interested in damages to, and losses of, forage crops grown and feed stored by beef producers. A ten year summary provided by AFSC indicates that approximately \$10 million was paid out to farmers reporting forage crop damage, suggesting approximately \$1 million annually was paid out for forage crop loss.

Another concern expressed by the beef producers in Alberta who had identified they were experiencing ungulate impacts (55% of producers) was disease transmission from wildlife to livestock. The main diseases of concern to Alberta beef producers were: chronic wasting disease (17%), brucellosis (7%), tuberculosis (4%), and diseases caused by ticks (3%). One of the main data gaps for understanding the impacts of ungulates is the cost associated with preventing and managing these diseases.

To address the impacts caused by ungulates (including forage competition, stored feed damage and loss, and disease transmission), 85% of producers reported managing to reduce ungulate impacts. There were a number of strategies these producers reported implementing to reduce impacts, but none of the listed suggestions were implemented at a high rate. The most common management practices implemented by these producers were installing electric fencing around stored feed (37%) and avoidance of silage bags or pits (38%). These producers also reported putting out alternative feed sources to draw wildlife away from stored feed (30%) and have changed their business practices to reduce impacts (22%). Some less commonly mentioned strategies included fencing off stored feed, allowing hunters onto land to reduce herd size and using deterrents (e.g., light or sound) or dogs to scare animals away.

#### Birds

Of less overall concern compared to ungulates and carnivores, 44% of producers in Alberta report experiencing impacts associated with birds. The top three species causing impacts to beef producers in the province were ravens (27%), geese (25%), and ducks (17%).

The primary impacts reported by producers in Alberta were depredation events on calves (24%), loss of barley forage (15%) and losses of oat forage (14%). Less than 10% of producers in Alberta reported impacts of losses of hay forage, silage crop, stored barley, oats, silage and straw damage. The number of responses associated with the percent of forage loss from birds was low and highly skewed, with a small percentage reporting extremely high percentage losses.

As a starting point for discussion, we used the survey data to calculate the average annual value of barley lost per individual producer who grew barley and experienced forage competition with birds as \$2,178 annually (based on an average of 350 acres grown and a reported rate of loss of 4%). Individual producers who grew oats and experienced forage competition with birds lost on average \$1,679 annually, (based on an average of 195 acres grown and a reported loss rate of 6%).

Although impacts from wild birds are less than those reported for ungulates and carnivores, there appear to be cases in Alberta where beef operations experience high levels of loss from birds predating on cattle and consuming forage and stored feed. Although it appears the percentage of beef producers impacted by birds is low, there may be cases where individuals experience more extreme impacts, and bear a significant financial burden.

#### How to improve coexistence?

When asked how to improve coexistence with wildlife, beef producers in Alberta identified four strategies: reducing problem wildlife populations, improved management by beef producers, changes or improvements to government planning and programming, and improved co-management opportunities. Although the top two suggestions relate to working within the current programs and approaches for addressing problems with wildlife, there were also a number of innovative suggestions, including changes to the current compensation programs, exploration of an ecosystem goods and services approach where producers are compensated for providing high quality wildlife habitat, improvements to land use planning in relation to wildlife habitat, and consideration for a new mitigation program to cost share efforts to reduce attractants.

#### Next Steps

The results of this study could be used to lay the foundation for the development of an ABP work plan to move wildlife and producer co-existence forward with policy makers, program designers, wildlife proponents, agricultural community and the public in an effort to create a beneficial situation for wildlife and those who are impacted by them. The work plan could include three sections: 1) Communications and Outreach, 2) Collaboration Efforts and 3) Further Research. Specific strategies are suggested for each of these theme areas as supported by the survey findings.

### Summary of Findings<sup>2</sup>

#### Who filled in the survey?

- 672 beef producers from around Alberta participated in the survey. This sample is representative of beef producers in Alberta with a 99% confidence interval and 5% margin of error.
- 80% of survey respondents identified themselves as full time beef producers and 17% of survey respondents identified themselves as part-time beef producers.

#### Perceptions and Attitudes toward Wildlife

- The majority of producers in Alberta agree it is important for them to know there are healthy populations of ungulates (83%) and carnivores (75%) in Alberta.
- 80% of producers in Alberta agree that the presence of wildlife is part of owning land, however, when the costs get too high, 80% of producers agree they need to remove problem wildlife.
- 88% of producers in Alberta agree that wildlife living amongst and moving through beef operations results in economic loss to the landowner.
- 70% of producers in Alberta agree the cost of supporting wildlife is unevenly borne by landowners in Alberta.

#### Tolerance Levels

- There was no level of agreement amongst beef producers about their tolerance of the current levels of economic loss as a result of wildlife where 50% agree the current loss due to wildlife is acceptable and 40% think the current level of loss is not acceptable.

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<sup>2</sup> *Black text – Alberta scale results; Green text – level one subset; Blue text – level two subset*

- Full time producers identified a minimum acceptable percent loss of 0% to a maximum acceptable percent loss of 5%. The median amount of acceptable economic loss due to wildlife was 1%. Approximately 20% of producers are not willing to accept any economic loss from living with wildlife.

#### Background Context

- Ungulates (81%) were the most problematic wildlife species from an Alberta beef producers' perspective, followed closely by carnivore species (74%).
- Beef producers in Alberta report a high number of wildlife attractants on the landscape, including stored feed (83% with hay yards), livestock dead piles (28%) and swath graze (60%).
- The main concern expressed about wildlife and beef operations in Alberta is the economic loss resulting from wildlife, reported by 80% of beef producers.

#### Carnivores

- 74% of beef producers in Alberta experience impacts from carnivore species that result in an economic impact to their operations and the beef industry.
- In Alberta 65% of beef producers are impacted by coyotes, 31% by wolves, 21% by cougar, 19% by black bear and 14% by grizzly bears.
- 64% of beef producers in Alberta have experienced a **depredation** event in the last three years including 61% of producers losing calves, 20% of producers losing cows, 14% of producers losing feeders and yearlings and 4% of producers losing bulls to a depredation event.
- Carnivore species also cause **property damage and loss** and 26% of beef producers in Alberta have experienced fencing damage from carnivore species, 20% of producers have experienced oat crop losses from carnivores; 14% of producers have experienced hay crop losses from carnivores; 10% of producers have experienced barley crop losses from carnivores; 7% of producers in Alberta have experienced shed /building damage from carnivores; and 7% of producers have experienced silage crop losses from carnivores.
- The survey results indicate that 54% of beef producers in Alberta were concerned about **indirect impacts** of sharing the landscape with carnivore species. The top three indirect impacts of concern to beef producers in Alberta include 49% concerned about increases in time management due to carnivores; 24% concerned about decreased weaning rates due to indirect impacts of carnivores; and 24% concerned about decreased conception rates due to indirect impacts of carnivores.
- Producers in Alberta report implementing **preventative measures** to reduce the impact of carnivores. The most popular include: increase checking on livestock (77%), remove dead livestock from landscape (75%), remove problem carnivores themselves (64%) and move calving grounds closer to home (62%).

#### ***IMPACTS TO BEEF PRODUCERS WHO REPORTED EXPERIENCING DEPREDAATION AND PROPERTY DAMAGE FROM CARNIVORES***

The following results are derived from a subset of the survey data and include only those beef producers (74%) who reported experiencing impacts from carnivore species. The following percentages relate only to producers who are being impacted by carnivores and not all beef producers in Alberta.

#### Depredation events

- 88% of producers who experienced impacts from carnivores report impacts from coyote, 42% from wolves, 28% from cougar, 26% black bear and 19% from grizzly bear.
- 86% of the producers who experienced impacts from carnivores report experiencing a **depredation** event.

The following results are derived from a subset of the data and include only those beef producers (86%) who reported experiencing depredation events. The percentages relate only to producers who are being impacted by carnivore depredation and not all beef producers in Alberta.

- 95% of producers who reported experiencing a depredation event reported calf depredations. The mean percent loss of calves from beef producers who experience calf loss was 2%, equating to a value per 100 calves \$1,742 annually or \$17 per calf.
- 21% of producers who reported experiencing a depredation event reported feeder/yearling depredations. The mean percent loss of yearlings/feeders from those who experience feeder/yearling loss was 1.5%, equating to a value per 100 feeder/yearlings of \$1,664 annually or \$17 per feeder/yearling.
- 32% of producers who reported experiencing a depredation event reported cow depredations. The mean percent loss of cows from those who experience feeder/yearling loss was 0.5%, equating to a value per 100 cows of \$535 annually or \$5 per cow.
- 7% of producers who reported experiencing a depredation event reported bull depredations. The mean percent loss of bulls from those who experience bull loss was 5%, equating to a value per 10 bulls of \$992 annually.
- The rates of depredation do not occur evenly among producers, with some reporting losses greater than 5%. The average depredation rate is 2%, a percentage of producers (7%) report losses of calves greater than 5% due to carnivores.
- The total value lost from depredation annually reported by survey respondents (representing 3.5% of beef producers in Alberta) based on the total number of cattle they reported and the average percent depredation rates per cattle type equates to just over **\$2 million in losses annually**. This value represents an extremely conservative amount of carnivore depredation in Alberta. This value is limited to survey respondents and does not extrapolate to the broader beef producer community in Alberta. In addition, the calculated loss does not include the indirect impacts associated with sharing the landscape with carnivore species.
- 62% of producers who reported experiencing a depredation event from 2011-2013 did **not** report to AESRD Wildlife Compensation program. The primary reasons for not reporting included programmatic issues such as:
  - burden of proof too great;
  - coyote depredation events are not eligible for compensation;
  - the time commitment required to process;
  - amount compensated not enough to justify time commitment;
  - impression there would likely be no action; and
  - did not know about the program.
- In Alberta, the average annual compensation payout for all claims during 2011-2013 from AESRD was \$220,584, predominately for confirmed cow and feeder/yearlings depredation events, caused by mostly by wolf.

#### Property Damage and Loss

The following results are derived from a subset of the data and include only those beef producers (74%) who reported experiencing impacts from carnivore species. The following percentages relate to those producers who are being impacted by carnivores and not all beef producers in Alberta.

- 31% of beef producers who experience impacts from carnivores and grow oats reported an average annual loss per producer of 275 bushels of **forage oats** as a result of carnivores, this equates to an estimated value for each of those producers \$1,047 of annually.
- 16% of beef producers who experience impacts from carnivores and grow barley reported an average annual loss per producer of 227 bushels of **forage barley** as a result of carnivores, at an estimated value for each of those producers of \$1,121 annually.
- 21% of beef producers who experience impacts from carnivores and grow hay reported an average annual loss per producer of 37 tonnes of **forage hay** to carnivores, at an estimated value for each of those producers of \$1,774 annually.
- 9% of beef producers who experience impacts from carnivores and grow silage reported an average annual loss per producer of 22 tonnes of **forage silage**, at an estimated value for each of those producers of \$862 annually.
- 39% of beef producers who experience impacts from carnivores reported **fencing damage**, costing an average for each producer of \$557 annually and taking approximately 59 hours of time.
- 10% of beef producers who experience impacts from carnivores report **building and shed damage**, costing an average for each producer of \$422 annually and taking approximately 18 hours of time.

#### Ungulates

- 81% of beef producers in Alberta report impacts from ungulates.
- 70% of beef producers in Alberta experience **forage competition** from ungulate species that result in an economic impact.
- In Alberta 60% of beef producers are impacted by white-tailed deer, 53% by mule deer, 39% by elk, 10% by moose and 4% by antelope due to forage competition.
- In Alberta 62% of beef producers report forage competition with ungulates in hay crops; 40% of beef producers report forage competition with ungulates in oat crops and 30% of beef producers report forage competition from ungulates in barley crops.
- 70% of beef producers in Alberta experience **damage or loss of stored feed** from ungulate species that result in an economic impact.
- In Alberta 62% of beef producers report damage or loss from ungulates in stored hay; 21% of report damage or loss from ungulates in stored oats; 18% report damage or loss from ungulates in stored barley; and 17% report damage or loss from ungulates in stored silage.
- 55% of producers are concerned about the economic impact of **disease transmission** from wildlife to beef cattle. The disease of greatest concern is chronic wasting disease followed by brucellosis, tuberculosis, and disease caused by ticks.
- 85% of producers reported implementing **management activities** to reduce impacts of ungulates.

#### ***IMPACTS TO BEEF PRODUCER WHO REPORTED EXPERIENCING FORAGE COMPETITION FROM UNGULATES.***

The following results are derived from a subset of the data and include only those beef producers (70%) who reported experiencing **forage competition** from ungulates. The following percentages relate to those producers who are being impacted by ungulates and not all beef producers in Alberta.

- 83% of this subset of producers report experiencing **forage competition** from white-tailed deer, 74% from mule deer, 54% from elk, 14% from moose and 5% from antelope.
- 96% of this subset of producers report forage competition in **hay crops**. The mean loss of hay crops annually (2011-2013) was 6% at a value of \$3,355 on an average of 451 acres.

- 89% of this subset of beef producers report forage competition in **oat crops**. The mean loss of hay crops annually (2011-2013) was 9% at a value of \$3,647 on an average of 154 acres.
- 82% of this subset of producers report forage competition in **barley crops**. The mean loss of barley crops annually (2011-2013) was 6% at a value of \$5,460 on an average of 356 acres.
- The total value lost from forage competition on hay, oats and barley forage crops annually reported by survey respondents (representing 3.5% of beef producers in Alberta) based on the total number of acres they reported lost equates to **\$1.9 million annually**. This value represents an extremely conservative amount of forage competition losses from ungulates in Alberta. This value is limited to survey respondents and does not extrapolate to the broader beef producer community in Alberta.
- 80% of these beef producers who reported loss due to forage competition from 2011-2013, did not report to AFSC compensation programs. The primary reasons for not reporting included programmatic issues such as:
  - Return not worth the effort;
  - Losses were acceptable;
  - Not insured;
  - Unaware of potential help;
  - Losses difficult to measure; and
  - Ineligible damages.

***IMPACTS TO BEEF PRODUCER WHO REPORTED EXPERIENCING STORED FEED LOSS OR DAMAGE FROM UNGULATES.***

The following results are derived from a subset of the data and include only those beef producers (70%) who reported experiencing **stored feed loss or damage** from ungulates. The following percentages relate to those producers who are being impacted by ungulates and not all beef producers in Alberta.

- 78% of these producers report experiencing damage by white-tailed deer, 69% by mule deer, 42% by elk, 15% moose and 1% by antelope.
- 94% of this subset of producers who report loss or damage to **stored hay**. The mean loss or damage to stored hay annually (2011-2013) was 4% with a range of loss between 0 and 100% and an average loss of \$2021.
- 64% of this subset of producers report loss or damage to **stored silage**. The mean loss or damage to stored silage annually (2011-2013) was 4% who report experiencing damage to stored feed with a range of loss between 0 and 100% and an average loss of \$3,113.
- 57% of this subset of producers who report loss or damage to **stored oats**. The mean loss or damage to stored oats annually (2011-2013) was 8% with a range of loss between 0 and 63% and an average a loss of \$1,994.
- 54% of this subset of producers report loss or damage to **stored barley**. The mean loss or damage to stored barley annually (2011-2013) was 1% with a range of loss between 0 and 35% and an average loss of \$2,262.
- The total value lost from stored feed on stored hay, oats, barley and silage annually reported by survey respondents (representing 3.5% of beef producers in Alberta) based on the total number of acres or tonnes they reported lost equates to **\$621,000 annually**. This value represents an extremely conservative amount of forage competition losses from ungulates in Alberta. This value is limited to survey respondents and does not extrapolate to the broader beef producer community in Alberta.

- 80% of these beef producers who reported loss or damage to stored feed from 2011-2013 did not report to AFSC compensation programs. The primary reasons for not reporting included programmatic issues such as:
  - Return not worth the effort;
  - Losses were acceptable;
  - Unaware of potential help;
  - Not insured;
  - Ineligible damages;
  - Implemented management actions to reduce impacts; and,
  - Losses were too difficult to measure.

## Birds

- 44% of beef producers in Alberta experience impacts from bird species that result in an economic impact.
- In Alberta 27% of beef producers are impacted by ravens, 25% by geese, 17% by ducks, 6% by eagles and 3% by hawks and less than 1% by swans.
- In Alberta 24% of beef producers in Alberta experience calf depredation from birds; 15% of producers who grow barley experience losses from forage competition from birds; 14% of producers who grow oats experience losses from forage competition from birds; 7% of producers who have silage experience silage loss from bird damage; 6% of producers who have stored oats experience stored feed loss from birds; 5% of producers who grow hay experience forage competition with bird; and less than 5% of producers experience losses of hay forage, silage crop, stored feed hay and straw damage from birds.

### *IMPACTS TO BEEF PRODUCER WHO REPORTED EXPERIENCING IMPACTS FROM BIRDS.*

The following results are derived from a subset of the data and include only those beef producers (44%) who reported experiencing impacts from birds. The following percentages relate to those producers who are being impacted by birds and not all beef producers in Alberta.

- 62% of this subset of producers reported experiencing impacts from ravens, 59% from geese, 38% from ducks, 17% from magpie and 13% from eagles.
- 80% of this subset of producers reported **injury or loss of calves** from birds at a rate of 1%.
- 66% of this subset of producers reported losses of **barley forage** due to birds. On average these producers reported an annual loss of 606 bushels of barley at a value of \$2178 annually.
- 60% of this subset of producers reported losses of **oat forage** due to birds. On average these producers reported an annual loss of 573 bushels at a value of \$1679.
- 27% of this subset of producers reported losses of **hay forage** due to birds. On average these producers reported an annual loss of 6 tonnes at a value of \$423.
- 42% of this subset of producers reported an average loss of **stored silage**. On average these producers reported an annual loss of 1.5% due to birds, equating to a value of \$1,263 annually.
- 31% of this subset of producers reported average loss of **stored barley**. On average these producers reported an annual loss of 1.4% due to birds, equating to a value of \$1,567 annually.
- 18% of this subset of producers, who have stored hay, reported an average loss of **stored hay**. On average these producers reported an annual loss of 2% due to birds, equating to a value of \$998 annually.
- 23% of this subset of producers, reported losses of **straw**. On average these producers reported an annual replacement value of \$54 due to bird damage.