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Final report on Health Canada research trial 2021-1477

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Our family operates Martin Farms, a beef cow-calf to finish and crop operation on Manitoulin Island in Northern Ontario. Jim, Birgit, Nick and Alex Martin farm together and market our finished cattle through our farm's beef brand, Pure Island Beef (see our web site www.pureislandbeef.com). We grow all of our own feed including corn, wheat, barley, hay and pasture as well as canola as a cash crop. Corn in particular, is vital for our winter feed supply and our cattle finishing ration as both corn silage and grain corn.

In this report, we explain our experience with Sandhill Cranes and the outcomes of the 50 hectare trial on our farm in 2021.

1. The size of our beef and crop operation:

Our crop operation is 1535 acres in a corn, wheat, canola, barley, hay rotation and a further 1800 acres of rotationally grazed pasture. We have 350 Angus, Shorthorn and Galloway cows, custom graze 300-400 stockers each summer and finish all our cattle for our farm beef brand.

2. Our farm's experience with increased use of corn fields by sandhill cranes for forage:

We have seen a dramatic increase in the Sandhill Crane population since we began farming on Manitoulin Island in 1998. Historically, it was rare to see even just a few cranes for short periods of time. Now we see flocks of hundreds of cranes landing in our crop fields to forage in spring and fall. We also see dozens of pairs

remaining season long, rearing their young here now. Bird predation on our crops is a particular problem in our region because our pockets of good farmland are scattered amongst thousands of acres of boreal forest. The feed we grow in these pockets seem to become a magnet of easy feeding for wildlife.

3. The beneficial use of other birds in corn fields:

While some bird activity i.e. Sandhill Crane foraging on newly planted corn, is devastating, there is beneficial bird activity. (This makes it critical to have a non-lethal control method selective for the specific foraging method of the cranes). We enjoy a significant population of Sparrow Hawks which prey upon the local population of Red Winged Blackbirds which are known to damage the mature corn cobs in the fall.

4. The increase in yield from treated corn seed:

The increase in our corn yield from treated seed is dramatic. We have suffered instances of 100% stand loss from Sandhill Cranes. Our average farm yield according to our crop insurance provider, Agricorp, was historically 99 bu/ac. With the use of Avipel in 2021, our average farm yield jumped to 133 bu/ac with some fields peaking at 165 bu/ac (note: for crop insurance purposes, Agricorp converts all of our corn silage and corn cobmeal yields to a dry corn bushel equivalent. We therefore use dry bushels of corn as our yield benchmark.)

5. How the elimination of noise makers and other deterrents in corn fields and the beneficial affects on birds in general:

Our predominant previous method of Sandhill Crane control was shooting to scare or scaring on foot, with a dog or with an ATV. The problem with this approach is that it scares all wildlife, disrupting their natural lifecycles. Of particular note is that our Meldrum Bay farm lies within the Young Lake Bird Sanctuary. It is home to a diversity of birds including some species at risk like the Bobolink and the Trumpeter Swan. By eliminating the use of loud, intrusive deterrents, we are respecting the habitats of these birds, and all wildlife.

6. The reduction of manpower/operating costs through the elimination of noise makers and other deterrents:

The use of Avipel and the elimination of the use of other deterrents has a dramatic impact on our cost of production by reducing labour requirements. The spring is already a very hectic season, especially on a beef cattle operation, where the rush of the spring planting season is compounded with calving, fencing and pasture turnout. The use of Avipel eliminates hiring additional labour for deterring

birds. In past years, this has amounted to 40-60 hours of someone being on 'bird detail'. This is a savings of \$800-\$1200 per year.

7. Increase in revenue and profit per acre of corn:

The increased value of our corn crop is staggering. When our 2021 corn yields with Avipel are compared to our historical average farm yield as reported to Agricorp, we saw a 34 bu/ac increase in yield. Our growing season was reasonably typical and we used similar fertility and corn hybrids as in previous years. So, we can attribute the yield increase largely to Avipel. At a market price of \$7.50 per bu, that is an increase of \$255 per acre in gross revenue. This is combined with a labour savings of about \$7 per acre from not having to manually deter birds. The final increased profit per acre of corn is about \$262. On our 50 ha trial site, that is an additional farm profit of \$32,357. Even if we calculated a 50% margin of error for any positive weather impacts on yield, the additional corn profit from Avipel would still be over \$16,000 across the test hectares.

8. Reduced stress levels, uncertainty and mental health benefits to us as a farmer by using treated corn seed:

Farming is a stressful occupation given the uncertainty of weather, pests, markets, commodity prices and animal health. The elimination of even just one variable offers some peace of mind. With Avipel, knowing that the emerging corn crop is protected even if there are Sandhill Cranes on the landscape, knowing that our time need not be further divided in an effort to manually control the cranes, and knowing that our main feedstock is not at risk is a great relief.

9. Increased opportunities, competitiveness and benefits to farmers by increasing productivity, profits and lowering manpower requirements.

Corn is an incredible crop for beef production. It is capable of producing huge tonnages of feed. It outcompetes hay in almost all cases when looking at feed production costs. Specifically, we have calculated that on our farm, it would take an *outstanding* hay crop of 10-12 round bales per acre in one cut to compare on a per unit feed cost to even just an *average* crop of corn silage. And the energy content of corn silage allows a beef producer to confidently background stockers and even finish cattle. But corn is often no longer grown in our region because of the trouble with Sandhill Crane damage. Neighbours often state that they will only grow corn on land that is visible from the house or farmstead so that cranes can be monitored and deterred. If more corn acres could be grown regionally, it would create the opportunity for more cattle to be backgrounded locally and even finished locally. Then these cattle could be marketed as local beef. All of this is important in an era when consumers are looking to eat local.

10. Our overall increased farm profitability in the beef sector based on certainty and lower cost feed production:

The contribution that Avipel can make to overall increased farm profitability is substantial. It allows the ability to successfully grow more feed on farm. In our test case, we grew the equivalent of over 4000 bushels more corn than in previous years. This directly reduces the amount of feed we need to purchase for finishing our cattle. It has also allowed us to increase our beef herd size as we expand our operation to now include our sons as full-time farmers.

11. Exposure time of the corn planter operator in the 50 ha trial:

The corn planter operator was exposed to Avipel only during measuring and mixing of the product with the seed. The 50 ha test required filling the 6-row corn planter 7 times. Each filling required about 2-3 minutes of measuring and mixing for a total exposure time of 14-21 minutes.

Respectfully submitted,

Birgit Martin

A handwritten signature in black ink that reads "Birgit Martin". The signature is written in a cursive style with a large, stylized initial "B".