Birgit Martin – Martin Farms
8 Hwy 540A
Gore Bay ON P0P 1H0
705-282-4608

Preliminary report on Health Canada research trial 2021-1477

July 31, 2021

Our family operates Martin Farms, a beef cow-calf to finish and crop operation on Manitoulin Island in Northern Ontario. We 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 cattle finishing ration as both corn silage and grain corn.

Sandhill Cranes, once a rare sighting on the island, are now present in massive numbers and can cause major crop damage both at seeding and at harvest. Photo evidence is attached to show historic levels of damage (attachment #5). Past damage from Sandhill Cranes to corn on our farm has ranged from 10-15% to entire field losses. Other farmers in Northern Ontario have also experienced substantial losses as noted in attachment #1. Current deterrent methods including scaring and shooting under CWS permits are not fully effective nor practical. This is our experience as well as others', as indicated in a letter from Manitoulin/North Shore Federation February 12, 2021 (attachment #2).

Our farm grows about 60 hectares of field corn per year of field corn exclusively for cattle feed. The research plan (attachment #4) allowed 50 hectares for trials, so some rows and fields were left untreated to record crop damage in treated and untreated areas. The fields of corn for the research trial are highlighted in attachments 3 a,b and c. It should be noted that the Dawson Twp site, 3c, is of particular interest because it is on the border of the Young Lake Bird Sanctuary. Being able to manage crane damage in a bird sanctuary setting has been challenging in the past and a product like Avipel could prove to be an ideal solution to protect wildlife and field crops alike.

Our 2021 corn planting began on May 9 and was finished on May 19. The seed population was about 33,000 seeds per acre. Preplant fertilizer or manure was incorporated, starter fertilizer was banded at planting and the balance of required nitrogen was top-dressed in mid June. Seedling counts were taken in treated and untreated areas after emergence and for the following few weeks when corn is most

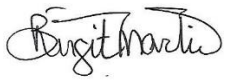
vulnerable to crane damage. Seedling counts were 7-8 plants per meter of row in treated and untreated areas. It was noted immediately that cranes were landing only briefly in small numbers or more commonly not landing at all in the treated corn fields. It appeared that the cranes sensed the Avipel readily and avoided the corn fields entirely. They foraged in nearby forage and cereal fields instead.

Attachment # 6 is a series of pictures taken of cranes foraging on our farm and also pictures of our test fields showing no damage from cranes. The Dawson Twp bird sanctuary site, like the others, showed no Sandhill Crane damage. Plant counts of mature corn show 7-8 plants per meter of row in treated and untreated areas.

In the winter of 2021-2022 when our yearly financial accounting reports are completed, a final report will be submitted on the research trial to address all the aspects of the research plan. Further additional research plans will be done to vary the concentration, application rate, application areas to study the behaviour patters of the sandhill crane on our farm crop fields.

To date we are fully satisfied with the use of Avipel Dry Hopper Box to protect our crops and allow the sandhill cranes to coexist in our area without any harm to this wildlife.

Respectfully



Birgit Martin
CCA – ON, B Sc Agr (Agronomy)

Attachment #1

CORN

PRODUCER NAME	ACRES	losses experienced	NOTES
MANITOULIN DISTRICT			
Farm 1	150	20% (2 instances of 100%)	
Farm 2	25	5-15%	
Farm 3	45	10-25% (1 instance of 100%)	
Farm 4	15	20% (1 instance of 100%)	
Farm 5	20	10-35%	
Farm 6	30	5%	
Farm 7	20	15%	
Farm 8	12	10%	
NIPISSING DISTRICT			
Farm 1	50	15%	
Farm 2	30		first year grower
Farm 3	50	5%	
Farm 4	50	20%	
Farm 5	25	15%	
Farm 6	60	10%	
Farm 7	30	10%	sweet corn
SUDBURY DISTRICT			
Farm 1	60		
Farm 2	60	20-30% (1 instance of 90%)	
Farm 3	60	20-30%	
Farm 4	90	10%	
ALGOMA DISTRICT			
Farm 1	130		
Farm 2	600	10%	
Farm 3	100		
Farm 4	100	30%	

Farm 5	20	10%	
Farm 6	10	40%	Geese damage
Farm 7	18	0%	No crop damage as corn is planted close to residence. Would like to plant further from the house, but this would result in great crop loss.
Farm 8	10		
Farm 9	75	20%	Spends a large amount of time keeping damage down
Farm 10	40	85%	2 years had to replant 30 ac. Usually plant ~ 35 ac. On 2 years, lost 85% of crop.
Farm 11	18	30%	
Farm 12	25	50%	
Farm 13	20	20%	
Farm 14	25	25%	
Farm 15	45	10%	
Farm 16	85	35%	

OTHER AREAS

Farm 1	1200 corn	5%	**THIS FARMER IS IN SOUTHWESTERN ONTARIO … clearly the Sandhill crane damage issue is spreading widely!**
	300 cereals	15%	

TEMISKAMING & COCHRANE

both districts reported widespread damage in cereals, but the losses are at harvest, not planting

Environment Canada Environnement Canada

APPLICATION FOR A DAMAGE OR DANGER PERMIT UNDER THE *MIGRATORY BIRDS REGULATIONS*

SECTION 1 – Applicant information (see instructions)

Have you previously held a Damage or Danger Permit? ☑ yes ☐ no

Have you submitted reports for previous permits? ☑ yes ☐ no

If this is a renewal, provide the previous permit number: DA 3383

Surname (*please print*):	Given name (*please print*):
Martin	James and Birgit

Name of business or organization (*if applicable*):
Martin Farms

Mailing address:
8 Hwy 540A

City:	Province/Territory:	Postal code:
Gore Bay	Ontario	P0P 1H0

Telephone:	Fax (*if applicable*):	Email:
705 282 4608		birgit@pureislandbeef.com

Is this application being completed for a migratory bird issue *located on a commercial property*?

☑ yes ☐ no

If yes, complete the commercial operation section below.

Commercial operation

Provide a general description of the type of business (*examples could include, but are not limited to: agricultural, industrial, landfill, golf course or airport*):

Martin Farms is a beef cow-calf to finish operation. We grow all of our own feed including forages, winter wheat, corn (grain and silage), oats and barley. We are located on Manioulin Island and are experiencing significant damage from Sandhill Cranes in new spring seedings of corn and cereals, Canada Geese in new spring seedings of corn, and from both species in mature crops and fall seeded crops.

Canada

SECTION 2 – Nominee(s) (see instructions) (Please use Appendix A for more nominees)		
Name	**Organization (*if applicable*)**	**Telephone**
James Martin	Martin Farms	705-348-1294
Birgit Martin	Martin Farms	705-282-4608
Nickolas Martin	Martin Farms	705-348-1022
Alexander Martin	Martin Farms	705-282-4725
Ken Duncanson		705-282-3304
Dennis Pidgen		705-698-6917

SECTION 3 – Nature of the situation and type of permit requested (see instructions)

a) Describe the situation and/or the problem for which the permit is being requested (*for example: crop damage, aggressive birds, property damage*). This must include your assessment of the seriousness of the damage or danger.

Our farm grows about 350 acres of annual crops and 500 acres of hay. Our annual crops (corn and cereals) suffer from spring and fall damage from Sandhill Cranes and Canada Geese. Corn is at most risk from severe damage, particularly from cranes. Losses of 10-20% of the corn stand are common, and we have experienced occasional catastrohic losses of newly seeded corn, requiring entire replants. Cereal stand losses, both spring and fall come from the thinning of the stand or outright consumption of the mature grain, likely by 10-15%, sometimes by 50% or more in patches.

b) Explain in detail all previous measures used to resolve the problem. **Examples include:** scaring with noise-makers, the installation of barriers and habitat alteration such as keeping grass longer.

Previous measures have included crop rotation, scaring by physically chasing the birds from fields, and by shooting and leaving dead cranes as deterrents under previous permits.

c) Explain the long-term plan developed to resolve the issue, including current and proposed management techniques.

The long term plan is to continue crop rotation, physical scare tactics and the use of firearms under permit.

The ultimate resolution would be the use of the US bird repellent Avipel, for which the manufacturer is currently seeking Canadian registration. We would respectfully request your support of this product registration in Canada.

d) Identify in the table below the species of migratory birds causing the damage or danger, the season when the problem is occurring, the type of permit requested, the estimated number of birds and eggs/nests being affected. (Please use Appendix B if more species are affected.)

Species: Sandhill Crane								Species: Canada Goose							
Season when problem is occurring		Winter ☐	Spring ☑	Summer ☐	Fall ☑			Season when problem is occurring		Winter ☐	Spring ☑	Summer ☐	Fall ☑		
Types of permit requested (check all boxes that apply)		Estimated no. of adult birds		Estimated no. of young birds				Types of permit requested (check all boxes that apply)		Estimated no. of adult birds		Estimated no. of young birds			
Scare using a firearm or aircraft	☑	<400						Scare using a firearm or aircraft	☑	<200					
Kill to scare	☑	10-20						Kill to scare	☑	5-10					
Kill	☐							Kill	☐						
Relocation of birds	☐							Relocation of birds	☐						
Collection, destruction and disposal of eggs	☐	Estimated no. of eggs		Estimated no. of nests affected				Collection, destruction and disposal of eggs	☐	Estimated no. of eggs		Estimated no. of nests affected			
Removal and destruction of nests	☐	Estimated no. nests affected						Removal and destruction of nests	☐	Estimated no. nests affected					

e) Provide dates for when the anticipated activity will take place — From 2021/05/15 (*yyyy/mm/dd*) to 2021/10/31 (*yyyy/mm/dd*)

SECTION 4 – Current location of migratory birds (see instructions)

Provide the current location(s) where damage or danger is occurring. The physical/civic address(es) and/or legal land description, parcel identification number (PID), UTM or latitude/longitude coordinates must be provided (a P.O. box is not acceptable). – Additional information such as acreage and maps can be provided to clarify.

Lot 19 Con 8 Gordon
Lot 21 Con 9 Gordon
Lot 23-25 Con 8 Gordon
Lot 12-13 Con 8 Robinson
Lot 9-13 Con 7 Robinson
Lot 25-26 Con 9 Dawson
Lot 26 Con 10 Dawson

SECTION 6 – Disposal (see instructions)

a) Disposal method

b) Provide the physical address and/or legal land description as well as municipality where the carcasses will be disposed. The physical/civic address(es) and/or legal land description, parcel identification number (PID), UTM or latitude/longitude coordinates must be provided (a P.O. box is not acceptable). – Additional information such as acreage and maps can be provided to clarify.

Landowner attestation for disposal site

I, _____ (print name), the undersigned hereby approve the disposal of migratory birds and/or disposal of eggs/nests on the site as described in section 7 and acknowledge that I am the landowner of that site.

_____ **DATE:** _____

SIGNATURE OF THE OWNER OF THE DISPOSAL SITE *(yyyy/mm/dd)*

_____

Telephone number of landowner receiving the birds

SECTION 7 – Signature of applicant (see instructions)

I, Birgit Martin (print name) attest that I have the ability and knowledge to accurately identify the species and conduct the permitted activities and hereby certify that:

- ✓ all information submitted is accurate and has been completed to the best of my knowledge;
- ✓ I have read and understood the relevant Best Practices document(s);
- ✓ I attest that the damage and/or danger being caused by migratory birds is serious;
- ✓ I attest that other methods or techniques have been or will be applied to solve the problem or that other techniques have not been successful;
- ✓ I attest that I, and/or the nominees, have the ability and knowledge to conduct the permitted activity(ies);
- ✓ I acknowledge my obligation to obtain in advance any other federal/provincial/municipal permits or authorizations required to legally conduct activities; and,
- ✓ I understand my responsibilities to address concerns regarding the activities if raised by the general public.

_____ **DATE:** 2021/02/08

SIGNATURE OF APPLICANT *(yyyy/mm/dd)*

Appendix A – Nominee sheet

SECTION 2 – Nominee(s) (see instructions)		
Name	**Organization (*if applicable*)**	**Telephone**
Jason Pidgen		705-674-4918
Gerry Martin		705-282-4054

Attachment #2

Manitoulin/North-Shore Federation

Ontario Federation of Agriculture

Eric Smith
Chatham Biotec
ericsmith@chathambiotec.com

Re: Support for Avipel Registration in Canada

February 12, 2021

Dear Mr. Smith,

Agriculture in Northern Ontario is a critical component of the economy, supporting over 12,000 jobs and contributing over $580 million to the provincial GDP. The industry has also seen year over year growth, especially in the grains and oilseeds sector, with farm cash receipts increasing by 300% from 2006 to 2017. However, sandhill cranes continue to be a threat to the crop sector, impacting plant counts, yields & farm cash receipts.

The OFA completed a study assessing the impact of wildlife damage to crops – it found that the total economic damage attributed to wildlife was over $265 million in 2018 and that in Northern Ontario, sandhill cranes caused the most damage. A flock of 100 cranes foraging in a planted cornfield for 3 days can eat about 240,000 kernels or 100% of about 8 acres. Damage, however, typically is spread out over the entire field and includes about 20 to 30% of the planted seeds. Cranes can decimate entire fields in some areas or remain foraging on farms for weeks and this issue exists for many crops outside of corn, including grains & potatoes.

Farmers in Ontario currently have little recourse to deal with sandhill cranes – there is currently a sandhill crane hunting season in Western Canada, but the population impacting Ontario is much smaller and a hunt is said to be unsustainable. Farmers can obtain a Damage or Danger permit, but this can be a burdensome process that does not meet farmer needs or address the underlying issue. Research is currently underway to assess migration and movement patters, which could help with mitigation and management decisions. However, these decisions are a long time off and farmers need help now.

The Manitoulin/North-Shore Federation of Agriculture is submitting this letter in support of Avipel, a bird repellant made by Chatham Biotec, receiving registration for use in Canada. This repellant stops sandhill cranes from eating the newly planted seed but is non-lethal. This, combined with the tremendous efficacy makes it a highly desirable option compared to shooting, scaring, lure crops, etc. Avipel is currently registered and available for use in many states, including those that border the Great Lakes, and this product could be a critical tool for use by farmers in Ontario. Here in Manitoulin/North-Shore, some farmers experience the constant presence of sandhill crane populations, which determinately impact their ability to grow certain crops and remain competitive. Farmers have been bringing awareness to this issue for years and welcome any tool that they can use to help mitigate these populations.

Sincerely,

Alan Emiry

Alan Emiry
Chair, Manitoulin/North-Shore Federation of Agriculture

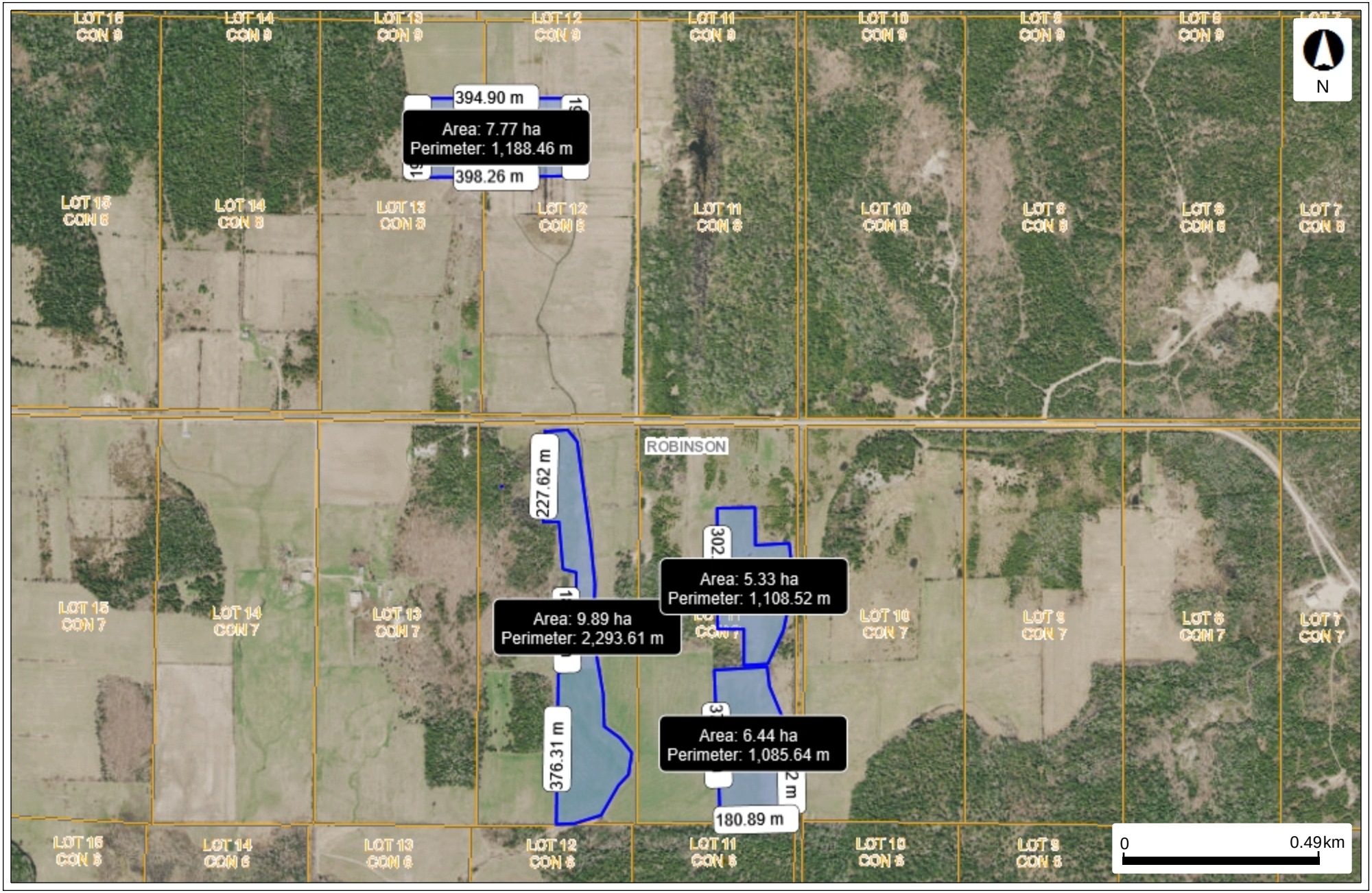
Attachment #3a

Gordon Twp corn fields 2021

Map Created: 4/5/2021
Map Center: 45.89021 N, -82.53286 W

Attachment #3b

Robinson Twp corn fields 2021

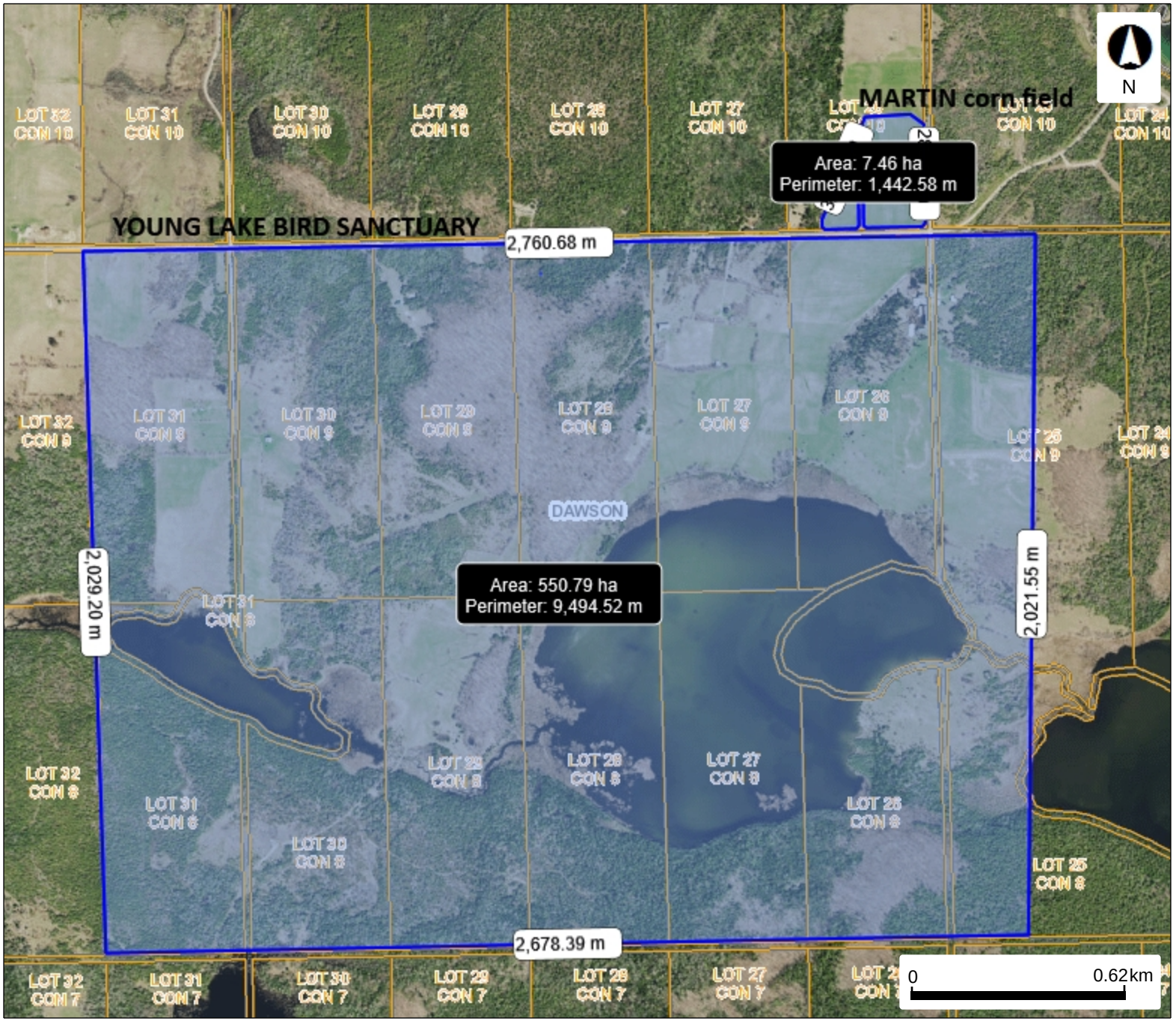


This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Map Created: 4/5/2021
Map Center: 45.85589 N, -82.80728 W

Attachment #3c

Dawson Twp corn field 2021 and Young Lake Bird Sanctuary



Legend

- @language-layer-township
- @language-layer-lot
- @ language-layer-conservation-authority
- @ language-layer-conservation-reserve

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Map Created: 8/2/2021
Map Center: 45.9057 N, -83.13394 W

Attachment #4

ADDING VALUE TO NATURE

CBL-Chatham Biotec Ltd
761 Hillsborough Rd
Riverview, New Brunswick
Canada E1B 3W1

T001 506 854 7253
F001 506 854 5894
www.chathambiotec.com

March 27, 2021

Submission #

Andrea Martin
Section Head of Minor Uses and Research Coordination
Submission Management and Information Division
Pest Management Regulatory Agency
Health Canada (A.L. 6605E1)
2250 Riverside Drive
Ottawa, Ontario, K1A 0K9

Dear Ms. Martin

The purpose of this cover letter is to explain why we are submitting a notice of research trial to use 5.9 kg manufactured product Avipel Dry Hopper Box on a 50-ha plot as a deterrent on corn seed at planting to prevent sandhill cranes from eating the corn seed.

The corn seed planted on Manitoulin Island area in Northern Ontario gets heavy damage (50%) from thousands of sandhill cranes and we were asked to conduct a study on the benefits to wildlife and farmers of using this product.

The research study will include:
1- The increase use of corn fields by sandhill cranes and other birds for forage
2- The beneficial use of birds to forage on other plants and insects in corn fields
3- The increase yield from treated corn seed
4- The elimination of use of noise makers and other deterrents on birds feeding in corn fields and the beneficial affects on the birds
5- The reduction of capital and operating cost to the farmer on elimination of use of noise makers and other deterrents
6- Cost saving to farmer on manpower and other additional associated cost of operating existing deterrent methods
7- Increase revenue and profit per acre of corn
8- Reduced stress levels, uncertainty and mental health benefits to the farmer by using treated corn seed
9- Increased opportunities, competitiveness and benefits to farmers by increasing productivity, profits and lowering manpower requirements.
10- overall increased farm profitability in raising and selling cattle with certainty and lower cost in corn silage and grain supply

ADDING VALUE TO NATURE

CBL-Chatham Biotec Ltd
761 Hillsborough Rd
Riverview, New Brunswick
Canada E1B 3W1

T001 506 854 7253
F001 506 854 5894
www.chathambiotec.com

There has been work done in the past on rice and corn seed in the USA and other countries to prevent birds from damaging these crops using Avipel Dry Hopper Box but this product has never been tested in Canada. In general, this product costs only 5% of farm crop losses.

I attended the University of Guelph and completed a cooperative education, Bachelor of Science in Agriculture degree with honours. I majored in agronomy – a balance of soil and crop science, with a special focus on forage production. I spent a fall and winter semester on a dairy farm in New Zealand, learning that country's art and science of milk from pasture. After graduating, I worked for 23 years in the agriculture inputs industry as a Certified Crop Adviser. Now I farm full time and own Pure Island Beef with the rest of my family. I am also the director for Northeastern Ontario on the provincial board of the Ontario Soil and Crop Improvement Association.

Attached is a list of other research organizations involved in this research study.

Respectfully,

Birgit Martin

Attachment #5

Attachment #6

Video of a large flock of cranes in Gordon Twp
See attached file.