**Bear damage at the Maple Valley Farm in Bridgewater - Steps the Department has taken to lessen the damage to corn fields in 2019 and 2020.**

## Background

Bears have been doing damage to standing corn at the Maple Valley Farm in Bridgewater for many years. The Department has offered recommendations for reducing the damage, primarily supplemental hunting, but have found that other abatement options seem to be limited. The farmer and his designated hunters are allowed to kill bears doing damage each year after the local game warden has verified the damage. They take many bears in this manner and this farm is one of two farms in the state responsible for the majority of bears killed in August doing corn damage. The owner reports that the amount of damage done each year is increasing and unsustainable.

In 2018, Bridgewater dairy farmer Richard Shurtleff reached out to Warden Jason Gravelle and myself for possible compensation from the Fish & Wildlife Department for damage done to his corn fields by bear. He described his situation as having lost half of his standing corn that year to bears, a loss that would force him to have to make up the financial loss by purchasing replacement feed for his cows. He said this constituted a $25,000 loss to him and that if it happened again, he would be forced to sell his farm which is the last remaining dairy farm in the town of Bridgewater. He feels that the bear population in Vermont is too high while we know from tracking the movements of collared bears that bears will abandon their home ranges in poor food years and may end up travelling 20 miles or more to feed in areas of concentrated food such as apple orchards and corn fields. Even with a reduced population he will continue to sustain losses from bears.

Jason confirmed that Richard had sustained a massive loss of corn that year despite him encouraging his employee and other hunters to shoot bears that were causing damage. At least 6 bears were legally killed by them in August that year, but many more bears continued to do damage. He annually raises 38 acres of corn in over a dozen relatively small fields, most of which he leases from other landowners. A game camera set up at one of the fields showed there to be at least 11 different bears visiting the field at one time in August. Jason had recommended using bear hounds to help reduce the damage, but hounds men say that the area is not appropriate for using hounds. The corn fields are small and either adjacent to property posted against hunting or adjacent to highways where the owners of the hounds are unwilling to run their hounds out of fear of their hounds being killed in automobile collisions.

We informed Richard that the Department does not compensate farmers for corn damage from bears, but that we would work with him the next year to try and lessen the amount of damage.

## 2019 Involvement

The following August (2019) we set out to test the effectiveness of electric fencing combined with flagging and pyrotechnics as a way of preventing bear damage. We selected a four-acre field surrounded by forest on three sides as a test case. A solar charger, synthetic fence posts and wire were borrowed from Wildlife Services and the Bear Project budget paid for flagging and some additional

plastic posts and scent baits. Prior to setting up the fence Richard had the field perimeter mowed and on August 20, 2019 five department employees worked a half day to erect a three-strand, baited electric fence with flagging. To help monitor the effectiveness of the fence we set up four game cameras around the perimeter of the field. We had intended on using timer-controlled propane cannons as an additional deterrent device, but Richard asked us not to deploy them as he felt the neighbors wouldn't stand for the noise.

That August and September we were successful in preventing damage from bears to that small cornfield even though the game cameras documented at least four different bears walking the perimeter of the fence. Loss of corn was negligible and mostly attributable to raccoons. Natural foods were plentiful in 2019, so the bears had alternative foods available to them and may not have been as persistent in trying to get into the field as they would have during a year of natural food shortage. The fence was taken down on October 15 prior to chopping the corn. He reported that some of his other fields had a higher loss to bears. Despite the availability of other foods, Richard did have one 10-acre field, known as the Curtis field, sustain a 10-20 percent loss from bears.

**2020 Involvement**

In 2020 we attempted to deploy the electric fence at the larger Curtis corn field which has damage every year. Conditions were much more difficult this season as there were fewer natural foods available to the bears and they were more tenacious in getting through the fence. They were aided in their efforts by what appeared to be large numbers of raccoons which worked the forested edge of the field and easily slipped under the lower wire and pulled corn stalks down on the fence. To keep the fence

operating the perimeter was walked daily by Jason or myself to keep the loose corn stalks and weeds from preventing the electric current from being cut off and to keep our tinfoil baits fresh with bacon grease and peanut butter. This larger field turned out to be more labor intensive and our efforts less effective than the 4-acre field we worked in 2019. Bears were already starting to hit the field at the time we set up the fence. When setting it up we attempted to reduce the cost of the fence by running heavy fishing line in place of one of the wire strands, but the fishing line was easily broken by the bears. We also deployed more flagging, a wildlife deterrent practice known as "flandry." A camera-mounted drone was flown over the field to take photos and assist in estimating the amount of damage. The final estimate at the end of the season was that approximately 25 percent of the corn was knocked down. Although we were disappointed by not preventing more damage, some of his other fields were much harder hit, some having more than half the standing corn knocked down by bears. The farmer indicated that the damage was actually less than anticipated at our field and so he harvested it several weeks later than his other unfenced fields. Our team dismantled the fence on September 25th. Damage overall was much worse for this farm this year despite his employee shooting seven bears from the other fields. His field that was damaged the worst was nearest his barn and hunted the most.

**What we learned**

We viewed our experience as an experiment and a learning event and concluded that it may be possible to prevent damage to smaller fields with electric fencing combined with baited wires and flagging, but that doing so was labor intensive with the fence requiring almost daily maintenance. Damage in larger fields, however, probably can't be prevented entirely, although with lots of effort the amount of damage can be reduced from what it would be without electric fencing. We were a bit discouraged by this outcome as we realize that most Vermont farmers do not have the needed resources to purchase the required fencing supplies needed for protecting large fields and do not have the time and personnel available to do the regular maintenance required for multiple fields.

Some of the things we learned about attempting to lessen corn damage from bears include:

- Electric fences can be erected fairly quickly, but that they require almost daily maintenance to keep the weeds from the lower wire and to remove corn stalks and tree limbs from the wires.
- Damage is greater in years of poor natural food availability for the bears – normally this is every other year and years that are even numbered ie., 2016, 2018, 2020, etc.
- Other animals cause damage in addition to bears, especially raccoons.
- Bears can be hazed from corn fields by pyrotechnics, but if done on fields using electric fences then the fleeing bears cause damage to the wires as they leave.
- It is important for the electric fence to be erected prior to the bears beginning to use the field.
- Baiting the wires is essential.
- Fishing line with flagging is not effective as the fishing line is too easily broken. The flagging probably does help some with deterring bears , however.
- The timing of cutting is important and heavier hit fields should be harvested first.
- Hunting and killing bears by itself is not enough to prevent large amounts of damage although this is the only deterrent most farmers use.

- Abatement methods would probably be more effective with wider mowed buffers between the forest and the fields.
- Having well maintained and functioning corn chopping equipment is essential for getting the corn chopped as early as possible each year.
- Each field is different and so different specific abatement strategies need to be applied to each.

**Where Do We go From Here?**

The Department needs to meet with Richard to see what more can and should be done to prevent bear damage in the future. Some additional involvement needs to come from the farmer if further abatement practices are to be done. Our recommendation is to come up with a bear deterrent plan that is specific for each of his fields and to discuss possible funding sources, as well as sources of volunteer help, with different hazing methods. Such a plan would also include ways to involve more hunters in the years that they are needed. The fields where hunting can be done, including with the use of hounds, should be identified. All known hazing techniques should be considered including different combinations of pyrotechnics, drones, fencing, strategic plantings, crop rotations and harvesting

methods.  There are even breeds of dogs bred specifically for keeping away bears whose use should be considered.

Forrest Hammond, Black Bear Project Leader

Jason Gravelle, Game Warden