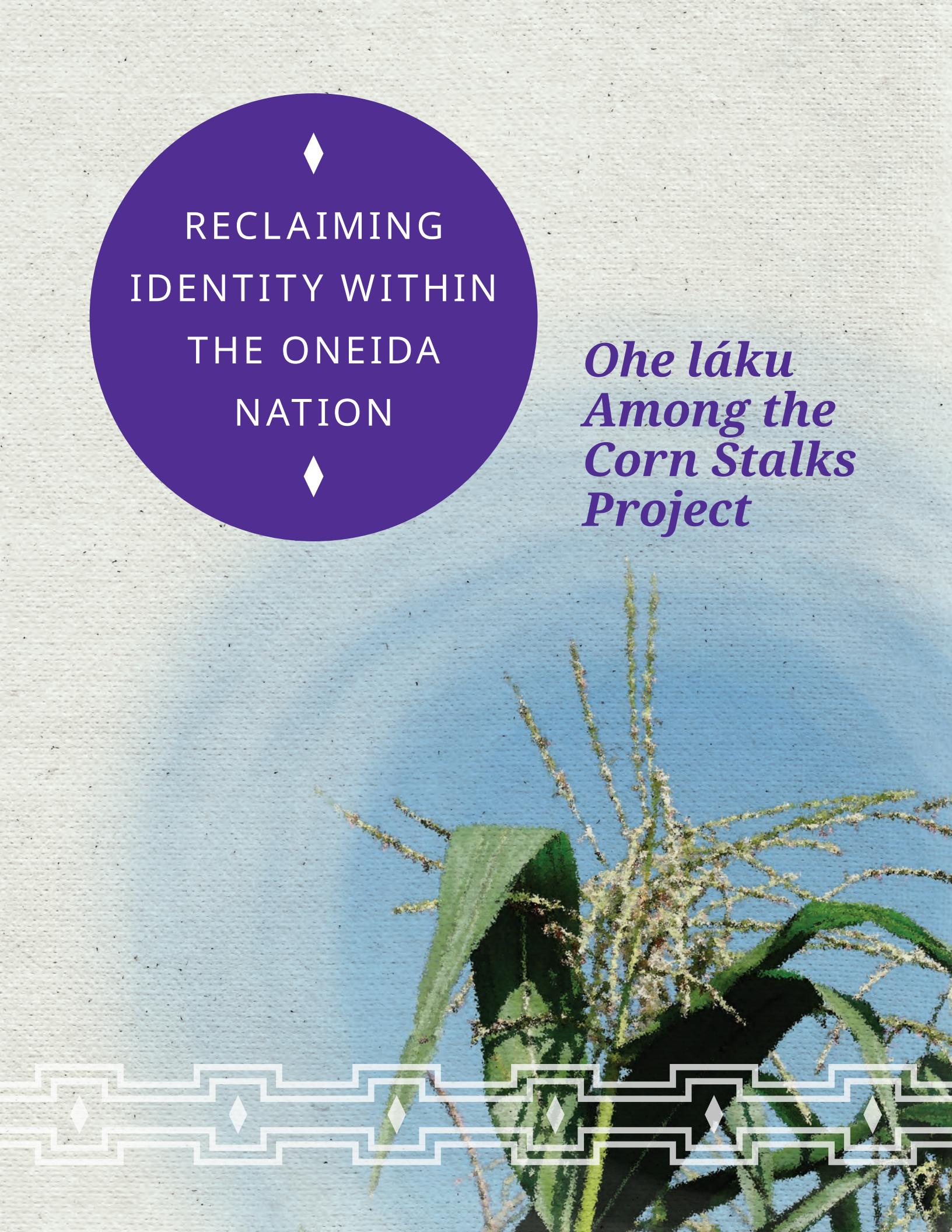
RECLAIMING IDENTITY WITHIN THE ONEIDA NATION

Ohe láku Among the Corn Stalks Project



THE CREATION STORY

As told by Amos Christjohn

Long ago, before there was any land here there was water all over, the only things were the creatures that lived in the water and the birds that flew above the waters. Now, further above there was land which was called the Sky World and there were people living there, but these people had supernatural powers. In the middle of the land was a great tree which gave them their light. There were many different fruits on the tree, this is where their light came from, the fruits.

Now the rule was that no one could cut into the tree or a great punishment would be given to that person, whoever was caught harming the tree. Now there was this young couple and the young woman was to have a baby. This woman started to crave things and one of the things she craved was the roots and bark from the tree, so she asked her husband to go and gather this for her. He was afraid to get these because he would surely be punished. He waited for the people to go from the tree. As they all left he went over and started digging.

As he was digging, suddenly the ground caved in and it left a big hole in the ground by the tree. The man got very scared of what had happened, so he went back and told his wife what had happened and she asked if he got what she had wanted. He told her he did not because he got so scared. She got very mad and said she would get it herself.

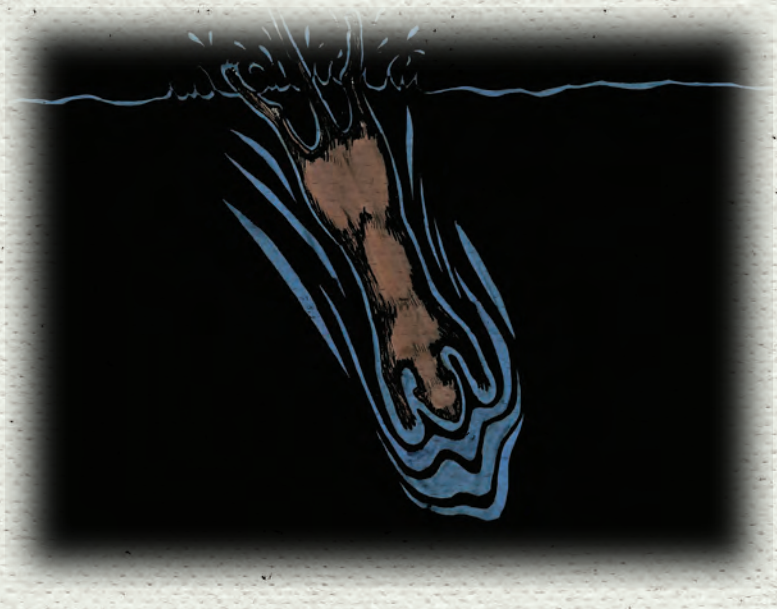
As she got to the tree she saw the hole, she went over to get a closer look. As she was looking through she saw all the water down below. She did not know that her husband followed her. As she was looking through, she fell through the hole. As she was falling she tried to grasp hold of something so she would not fall. All she could get was some of the ground and roots of the tree. But she could not hold on and she fell through. As she fell through the birds and water animals saw a light through the hole that was made and they could see something falling. So the birds went up to see what it was and they noticed that it was a woman from the Sky World.

So they sent one of the birds back down to tell the water animals to see which one of them was able to support her upon their back. Then they talked among one another to see who was able to support her. So they turned to the great turtle and she agreed. All the birds went up to bring the woman down safely on the turtle's back.

As the woman fell she got very frightened and fainted. She never woke until she was on the turtle's back. All she saw was water, all the birds and the water animals. She asked where she was and they told her that they saw her fall through the hole up there. She looked to where they had pointed and saw the light shining through the hole.

So, she asked if they knew where there would be any mud or dirt so she could mix it with what she had grabbed as she fell. Some of the animals said they were not sure but there might be some at the bottom of the water.

First, the otter said he would go down and see if there was any, then he went underwater and was gone. Everyone waited patiently for the otter. Soon he came floating to the top, but didn't get any mud. So the loon said it would try and went underwater. Everyone waited patiently for the loon to come up and soon she came up and she too did not have any. So the beaver said he would try and away he went. Soon he came up with none and felt very sad. The woman told him not to feel bad and that he had tried his best. So the muskrat said he would try and he went down. For a long time the muskrat was gone. They became worried and then the muskrat came floating to the top with a little bit of dirt in-between his claws. The woman took it and put it with the dirt she had and placed it upon the back of the turtle. It began to grow and grow and different things began to grow too.



Then the woman began to gather things, for she was getting ready to give birth to the child she was to have. As the time came, she gave birth to a girl and she was very happy. The woman and her daughter walked about the earth and she taught her daughter the different things that grew and what they were used for. As the days and years went by, the young girl grew to womanhood and she looked very beautiful. As she was walking about far from her mother there was a man that before her appeared. She became very terrified at seeing this man and she fainted.

As she came to, she noticed that there were two arrows on her stomach. One had a sharp point on it and the other a dull point. She took them home with her. As time went on she felt funny inside her and she told her mother of this man that she had seen and of the two arrows he had left behind. So the mother told her of what had happened to her and how they got to where they are at now.

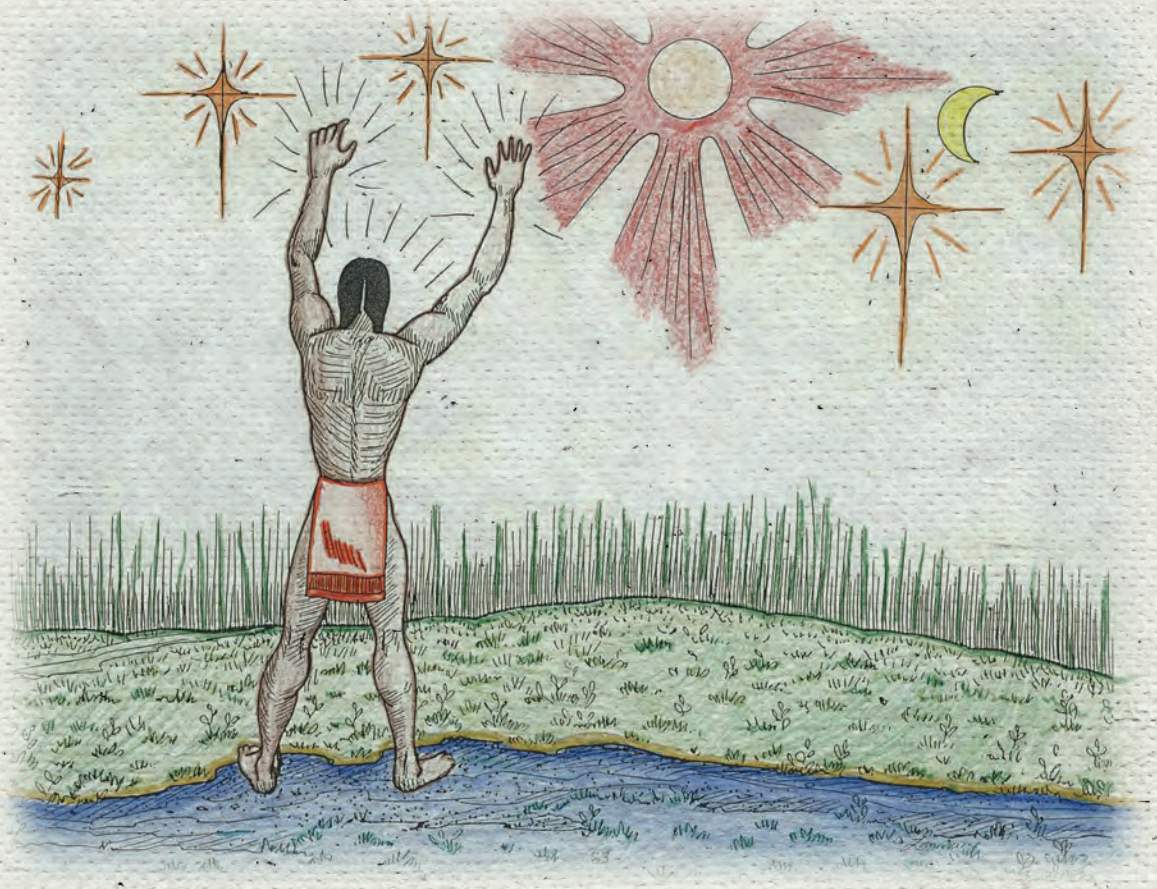
As the days went by the young woman did not feel too good because there was a great commotion within her body. When she finally gave birth to her twins, the one called the right handed twin was born the way all children are born and the left handed twin came from his mother's armpit. This is what killed their mother. Right away the left handed twin spoke up and said it was the right handed twin that killed their mother. Then the right handed twin spoke up and explained to their grandmother what had happened. He told her that he and his brother were arguing about who was going to be born first. He told his grandmother that he told his brother that he was going to be born the way all children are born and his brother said he was going any way he wanted to and so therefore he come out of their mother's armpit and that is what killed her. It was the left handed twin that killed their mother. But, the grandmother did not believe him and took the side of the left handed twin and got very angry with the right handed twin. She told him to bury their mother. And so angrily he started to bury his mother. As he finished, there immediately grew corn, beans squash and Indian tobacco. Then the twins went about their own ways.

The thing different about the two was that they had powers to create things and they would grow rapidly. As the right handed twin was walking about he was creating the grasses and different medicine plants and giving them names. The left handed twin would go around and give poison to some of the plants and also distort some others. Now as the right handed twin was going around he was creating different plants that could be used as food and also different kinds of trees. Some were tall and straight, some big and wide and he gave them different uses. And his brother would go around changing the edible plants by making them smell awful. He would give the tall trees rough bark and the big ones small and stout with sharp thorns. Then the right handed twin started to create different animals, small ones and big ones. These animals would eat the plants to help them grow. Then the left handed twin came around and made animals that would eat the other animals that his brother had created.

Then the right handed twin made different areas where the waters would flow. He made streams, rivers, springs, lakes and the big oceans. Some of the rivers he made, the water currents flow in both directions and the springs with sweet tasting water. Then the left handed twin came by and made the rivers have rough and jagged rocks that caused the rivers to have very rough rapids. Some of the springs breathed poison and heat which made them smell very bad. As the right handed twin finished with the waters he went to the different birds

and gave them beautiful colored feathers and songs that they could sing. Soon the left handed twin came and saw the birds, he changed some of the birds and the songs they sang. Later, the right handed twin went back to look at all the things that he had created. He noticed the other different things in his creations and knew he didn't create those things. He looked at everything he made and saw the changes. This made him very angry. As soon as he finished checking the things out he set out to look for his brother. Soon he found him amusing himself by the ocean. The right handed twin spoke very sternly to his brother and told him that he had no right changing the things that he had created. Then the left handed twin replied to his brother and said that he wanted to create things too. He shouldn't be the only one to be creating things. So the right handed twin said that it was time that they decided who would be the creator of all the things on Turtle Island.

So they decided that they would challenge each other with a game of lacrosse. So the right handed twin made a big golden ball of sand and threw it in the east and said that this golden ball would be the one to start the game when it came up in the east and end the game when it went down in the west. So they agreed and went their own way to get ready for the game.



When the golden ball rose from the east they began the game and became rough with one another. When the ball set in the west the game stopped, but neither one won the game. So they said they would play the peach stone game when the golden ball came up from the east and end the game when the ball set in the west. When it rose from the east they began to play. It was going back and forth but when the ball set in the west, still no one had won. Then they said that they would think of something when the ball rose from the east. When it did rise the left handed twin said the only way that anyone was going to be creator of all things was that one of them would have to be killed. So they would have to fight with one another. They began to fight, but it was still even, no one was winning. They went to reach for something to kill the other with. The right handed twin reached for the deer antlers and the left handed twin reached for an old stick. As this happened, the right handed twin knocked his brother to the ground. He thought he had killed his brother. He made him a raft and set him on it and put him out to sea. Then the right handed twin was considered the creator of all things. He was called the Holder of the Sky. The left handed twin was called Flint because of his rigidness. The left handed twin was not killed, he survived and established new land across the ocean and created his own things, the things he liked.

The creation story is an Iroquois legend that dates far back into time. It has been retold here for your enjoyment by Bob Brown and translated into Oneida by Amos Christjohn. Melinda Doxtator and Mary Jourdan served as proofreaders. Artwork by Mary Lemiux. Linguist is Cliff Abbott. Director is Amelia Cornelius. Creation Story artwork acquisition and coordination by Scott Elm, Oneida Nation.

RECLAIMING IDENTITY WITHIN THE ONEIDA NATION:

Ohe láku Among the Corn Stalks Project

Restoration of White Corn Production

The Oneida are a part of the Haudenosaunee or Six Nations. Before colonization, Haudenosaunee were known to be great farmers and the women tended to vast cornfields during the 17th and 18th centuries. They even provided corn to Washington's army during the Revolution.

Children were separated from their families and confined to boarding schools which resulted in a disappearance of farmed goods and traditional practices.

Due to colonization, the Oneida were unable to farm corn. The Oneida were forced to assimilate and were given commodity foods from the U.S. government, which led to many health problems including diabetes and high blood pressure. Many commodity foods including lard, canned fruits and vegetables, and highly processed foods are high in salt, saturated fat and sugar. Children were separated from their families and confined to boarding schools which resulted in a disappearance of farmed goods and traditional practices.

In an act of resistance to this treatment and to reclaim traditional practices, a group of community members had a solution. Ohe láku Among the Corn Stalks, coordinated by Laura Manthe and Lea Zeise of the Oneida Nation in Oneida, Wisconsin, along with support from the community, started a project to revitalize production of white corn and traditional foods.

Susan Ratcliffe

Oneida white corn is derived from seeds that have been saved for generations.

IPM Institute

Laura Manthe standing at the edge of the corn field.

Laura Manthe

Becky Webster pulling an ear from the stalk during the fall community harvest.

Health and Community

Ohe láku's mission is to play a pivotal role in the reintroduction of high quality, organically grown foods that will ensure a healthier and more fulfilling life for the Oneida. Manthe wants to be a facilitator of positive dietary and nutritional change. The project is oriented towards meeting the communities needs and goals today and into the future.

Since the project began in 2016, the quality of Ohe láku's corn has improved greatly through community-based learning. A common theme felt throughout the process of producing white corn is a sense of togetherness. While white corn is grown for food, trading and art, it also provides a way for Indigenous communities to come together to celebrate growth and life.

Oneida white corn is a traditional, open-pollinated flint corn with origins in the Northeastern United States. Unlike commercial white corn and modern hybrids, Oneida white corn is derived from seeds that have been saved for generations. White corn is more nutritious than conventional corn and has two-and-a-half times more protein, when compared to field corn.

None of the community members had successfully grown white corn on their own. Working together and sharing the responsibility of growing corn, they found success. Growing and harvesting white corn is highly labor-intensive and requires a lot of work to produce a successful crop. One major hurdle to overcome was determining how to hand-weed three acres of corn. Manthe had an idea to assign three rows to each individual or family participating with the project. This distributed labor and engaged different community members. Manthe believed that teamwork and coming together really helped with production.

"We broke the rows up, and families would have rows assigned to them, that way it feels more manageable with weeding. If your row is looking pretty good, move over to your neighbors and help them weed theirs."

—Laura Manthe

As the group achieved success, more tribal members wanted to participate. Community members already participating in Ohe láku Among the Corn Stalks, created the "Under the Wing" program. In this program, current members sponsor a new family for the growing season. The new family is coached so they understand what is needed of them to meet their goals and become accustomed to the growing process. Manthe has found this approach has reduced weed pressure, improved corn quality and increased yield each year, since fewer weeds results in less competition for water and nutrients in the soil.

Another idea that Manthe had when first starting the Ohe láku project was to engage and involve the children. By increasing participation of families, children learned how to weed, harvest and tend to the needs of the corn. Manthe hopes that establishing white corn and encouraging children to take part in its production will bring healthier food into their lives.

"Having the kids out here, singing to the corn, talking to the corn and having good positive thoughts—it really does feel like the more we are putting into it, the more the corn gives back."

—Laura Manthe

The hard work from a long summer spent weeding and tending to the corn are celebrated in the fall with a community harvest and husking bee. Traditional white corn must be handpicked, as it is too large to be harvested by modern equipment. Handpicking is the traditional way to harvest white corn and even though this requires more time, it results in less damage.

School groups, families and people from all different backgrounds within the Oneida community come together to harvest the corn. Stations are set up for picking, shucking, sorting, braiding and drying. There is singing, laughter and joy among the hard work and everyone does their part to ensure there is enough corn for the entire community.

Traditional and Modern Practices

Manthe and her team have increased white corn production to approximately six acres since 2016. Production begins in May by preparing the field for planting and ends in November with the Harvest and Husking Bee. Traditionally, white corn is planted in accordance to the lunar calendar and important ceremonies are held at the different stages of corn growth. In August, during the green-corn stage, a ceremony is held where the corn spirit is acknowledged and given thanks for fulfilling its responsibility.

The combination of traditional and modern practices has resulted in gradual improvements each year in crop quality and yield. Manthe's group worked with local experts to learn how to monitor and manage insects, weeds and diseases, without synthetic pesticides. They secured new equipment to help improve planting, weed management, soil health and nutrient management. The first few years were a learning experience, but once they found a good balance between modern and traditional practices, the corn took off.

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Laura Manthe pulling a small weed from the edge of the corn field.

Laura Manthe

Husking Bee helpers sitting in the talking circle led by Don Charnon.

Traditional white corn must be handpicked, as it is too large to be harvested by modern equipment.

Once traditional white corn is contaminated with conventional corn pollen, those conventional traits can never be removed.

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Tractor and sprayer used for applying fish-emulsion fertilizer and other nutrients.

Planting

Planting, maintenance and harvest of white corn is influenced by the unique characteristics of open-pollinated corn. White corn may be planted using a two-to-six-row planter commonly used by corn belt farmers during the 1960s–1980s. These are relatively inexpensive and readily available. Planting rows should be 32″ wide with eight-inch spacing between plants within the row. **Once traditional white corn is contaminated with conventional corn pollen, those conventional traits can never be removed.** The field must be located at least 600 feet from field corn to ensure cross pollination does not occur. Planting must be carefully monitored to identify and address any problems that occur during the process, including double seeding or skips in the planted row.

Early planting allows the crop to mature before the frost, however sometimes planting must be delayed due to low soil temperature or overly wet soil. Delaying planting may reduce yield but higher soil temperatures will help the crop emerge more quickly, and the delay can provide an opportunity to kill weeds that emerge earlier in the season. The yield goal for white corn is between 45–75 bushels per acre. Planting density should be 15,000–20,000 plants per acre.

Weed Management

Early weed management is critical because white corn does not compete well against weeds. Cultivation should be completed at least twice between VE and V3 growth stages. The corn is at V7 when it is approximately knee high and V10 is when the canopy closes. If cultivation is too infrequent, including hand cultivating within the planted row, corn growth and yield will be reduced.

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V8 stage corn in a field where weeds have been well controlled by cultivating including removal by hand and hoe between corn plants within each row.

Weed management should include reducing the weed “seed bank.” This seed bank includes weed seeds at soil depths too deep to allow germination which can survive for years or decades. Through cultivation, these seeds are brought to the top several inches of soil, where they germinate and become a nuisance. Tillage, cover crops and mowing help suppress and destroy weeds by preventing seeds from germinating or mature plants from going to seed. Herbicides approved for organic production are of limited usefulness because of their expense and limited efficacy.

Nutrient Management

Nitrogen should be added when the crop is about eight inches tall to help with nutrient uptake and bulking. Testing corn ear leaves at silking, and corn stalks in the fall for nitrogen content is also recommended. Corn has high nitrogen needs and more nitrogen may help to improve yield. Many laboratories that provide soil testing services also test plant foliage, and can provide recommended application rates for any additional nitrogen based on test results.

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Laura Manthe standing proudly in front of the 2017 white corn crop.

Insect Management

Common insect pests in Oneida white corn include corn earworm, corn rootworm, European corn borer, fall armyworm, brown marmorated stink bug, corn leaf aphid, wireworm and seedcorn maggot.

Plant stands should be monitored after germination for damage due to feeding on seeds by wireworms and seedcorn maggot. Adjustments to the crop rotation that include crops that are not hosts to these pests can reduce damage. Other insects are not likely to become a problem until August and September. The most important pests include corn earworm and European corn borer. Problems with corn rootworm may vary by region and the number of years a field has been in corn production. Corn rootworm damage can be reduced by rotating the corn crop with another crop or crop mix that rootworms will not feed on such as beans, squash or cover crops.

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Side view of the tractor and spray tank used for corn management.

In northern regions, European corn borer has two generations. The first generation will impact stalk quality and second generation will impact ear retention. The second generation bores into the shank where the cob is attached to the stalk. Where corn is hand harvested, injury to the stalk is less of a concern than with mechanical harvesting.

Monitoring for fall armyworm is recommended if fields are especially weedy, since weeds serve as an alternate host for egg laying. The larvae feed on corn leaves between emergence and when corn reaches knee height, and can defoliate plants if populations are high (V7).

Insect traps are available for monitoring corn earworm, European corn borer, corn rootworm and fall armyworm, and should be deployed and checked according to the calendar (pages 10–12). The number of insects captured can suggest when actions need to be taken to protect the crop. See the Resource section at the end of this publication for sources of additional information on managing insect pests and supplies for monitoring.

Eugene E. Nelson, Bugwood.org ipmimages.org/browse/detail.cfm?imgnum=5360686

Corn earworm pheromone trap.

Common insect pests in Oneida white corn include corn earworm, armyworm, brown marmorated stink bug, corn leaf aphid, wireworm and seedcorn maggot.

David R. Lance, USDA APHIS PPQ, Bugwood.org

Brown marmorated stink bug on leaf. This insect feeds on corn and many other plants, sucking sap from corn kernels, soybean seed pods and other plant structures. Feeding in corn occurs primarily in late summer through harvest, most often on corn plants in outer rows within a field.

Merle Shepard, Gerald R. Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org

Adult and nymph corn leaf aphids. These insects cluster in groups and suck sap from corn plants. They are typically controlled by natural enemies including lady beetle adults and larvae, and lacewing and syrphid fly larvae.

Scott Bauer, USDA Agricultural Research Service, Bugwood.org

Western corn rootworm.

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Entry point of European corn borer caterpillar.

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Damage due to European corn borer caterpillar feeding.

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European corn borer caterpillar, the immature or larval stage of this insect pest.

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Adult Japanese beetle feeding on corn silks. The immature stage of this insect is a grub which lives in the soil and feeds on plant roots, emerging as an adult beetle in mid-summer. Root feeding is not important in corn.

University of Georgia, Bugwood.org

Fully grown fall armyworm caterpillar and entry hole on a corn ear. This caterpillar will begin to spin a cocoon and then emerge as a moth. Only one generation occurs each year, with caterpillars feeding mid to late summer.

Whitney Cranshaw, Colorado State University, Bugwood.org

Second-generation corn earworm caterpillar feeding on the kernels within the ear. Feeding usually starts at the tip of the ear. The adult moths migrate north from more southerly overwintering locations, and begin to arrive in Wisconsin in late spring, early summer.

Lyle Buss, University of Florida, Bugwood.org

Fall armyworm adult.

Laura Manthe

Tony and Ruby Kuchma braiding corn husks during the Husking Bee.

Harvest

Corn ear size is determined when corn is knee high (V7), about 10–14 days prior to silking. Poor growing conditions or low fertility will impact kernel development. Cool temperatures, drought or too much moisture during and after pollination can reduce the length of the cob. White corn takes approximately 110 days to reach maturity. Potential for mold problems can be exacerbated if harvest is delayed later than mid-October.

Four to five acres of white corn can be harvested, husked, braided and hung in four days with a labor force of 20–40 people. Corn destined for food processing may be mechanically shelled, since minor damage to kernels is acceptable for corn being ground into flour. To minimize kernel injury during mechanical shelling, prior to shelling, cobs should be dried on racks in a hoop house or well-ventilated garage. Experimentation will be necessary to determine when the corn is dry enough for mechanical shelling with minimal kernel injury.

The highest quality ears of corn are saved for seed for replanting. These ears should be from the earliest-maturing corn, and have eight straight rows of white kernels. Ears being saved for seed should have three husk leaves left on the end of the ear, so it can be braided and hung to dry. A ribbon or other maker may be tied to the braids that are being saved for seed. During the husking process, some of the corn will lose the husk entirely, and those ears should be dried on racks.

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Corn ears drying in the greenhouse.

Yield Monitoring

White corn yield can be calculated by counting kernels using the formula below. This method will accommodate any inconsistencies in ear length, a common trait of white corn, and eliminate variability caused by moisture levels at the time of the yield assessment. Yield estimates should be taken just prior to harvest. The yield assessment should include checking for and documenting losses from weeds, insects and wildlife pests.

$$\left\{ \frac{[(\text{No. of kernal rows per ear}) \times (\text{Avg. no. of kernals per row}) \times (\text{No. plants per acre})]}{1000} \right\} \div 90 = \text{Yield per acre}$$

In the yield formula, the factor of 90 represents the number of kernels per bushel. The industry standard for conventional corn is 90,000 kernels per 56 lb. bushel. This equals an individual weight of about ten ounces per 1000 kernels. The number of kernels per bushel can vary from as low as 65,000 and up to 100,000.

Yield can be reduced between harvest and final processing due to rot, or mechanical or other damage. Tracking yield through the entire drying process will capture any post-harvest losses. This can be done by recording the weight of corn that meets and does not meet quality standards for processing. Be sure to protect the harvested corn from wildlife or mouse damage during storage and processing.

The industry standard for the final weight of commodity corn is 15% moisture and 56 lb. per bushel (volume). If white corn is dried to less than 15%, the weight of the corn will be less than 56 lb. per bushel. Conversely, corn weighed at greater than 15% moisture will weigh more than 56 lb. per bushel.

Cover Crops, Crop Rotation and Land Use

- In the year prior to planting corn, a mix of tillage radishes and clover may be planted in July/August. In northern climates a planting rate of 4 lb. of radish, 4 lb. of crimson clover and 4 lb. of red clover per acre is recommended. Tillage radishes access phosphorus and potassium located deeper in the soil and bring those to the surface as the radishes decompose over the fall, winter and spring. The clover mixture captures nitrogen from the air and releases that into the soil as the clover decays.
- Grow the cover crop to full maturity and kill just before it goes to seed with mowing, crimping or rolling. Tilling is also an option, but this will bring new weed seeds to the surface and can result in soil loss during rain and snow melt events. Terminating at full maturity is important for cover crops which fix nitrogen, and to maximize biomass production.
- For fields currently planted to corn, leave corn stalks in place in the fall, then around June 1st of the following year, rotovate and plant a mixture of forage sorghum, crimson clover, red clover and sunflower. Rotovate again in the following spring prior to planting white corn.


Susan Ratcliffe

Braided corn hung to dry with metal tins at the top to prevent rodent feeding.


iStock: shinji

Red clover.


iStock: nnorozoff

Tillage radishes.

White Corn Planning Calendar

Clemson University—USDA Cooperative Extension Slide Series, Bugwood.org

Wireworm larva which feeds on newly planted corn seeds and roots. The adult stage of this insect is the click beetle, named for the clicking sound they make when popping upright from an upside-down position.

Roger S. Key, English Nature, Bugwood.org

Click beetle.

Whitney Cranshaw, Colorado State University, Bugwood.org

Seedcorn maggot larva, which feeds on newly planted seeds and seedlings. The maggot is the immature stage of a fly that resembles the house fly.

SPRING

- Carefully plan and document where you will plant corn and other crops. A good record of fields and crops each year will help you manage crop rotations to improve soil health and reduce pest damage.
- Complete soil testing at the beginning of spring and after soil has thawed. The soil test lab and/or a local agronomist should be able to recommend the amount of fertilizer needed based on soil-test results. Potassium (K) and nitrogen (N) are key nutrients in corn production; K is needed for stalk strength and kernel production. Do not overapply phosphorus (P) to reduce potential for contamination of streams, lakes. Sources of organic N are limited and include cover crops and commercial products, e.g., fish emulsion, cattle or chicken manure. The farm currently has been using 2-1-15 pelletized manure that can be broadcasted prior to the next round of cultivation.
- Order fertilizer at least one month before planting.
- Add soil amendments a few weeks before planting if need is indicated by test results or agronomist.
- Create a “stale seedbed,” or weed-free area for planting by tilling, tine weeding or rotovating twice at least one week before planting. Follow up with very shallow cultivation the day of planting to kill any recently emerged weeds. Complete this preparation and planting as soon as fields are sufficiently dry to avoid compaction, which can occur when equipment or foot traffic compresses wet soil. Prepare and plant the driest fields first.
- Monitor and record soil temperature to help schedule planting. Planting may begin when soil temperatures are 55°F or warmer and soil moisture is adequate but not excessive. Consider planting during the new moon, but do not delay planting if suitable conditions exist earlier.
- After corn plants emerge from the soil, cultivate weeds weekly. Record cultivation dates throughout the growing season.
- Monitor fields post-planting for even plant emergence.
- Fields should be monitored for damage as plants emerge due to feeding on seeds by wireworms and seed corn maggot. Spotty emergence may indicate a problem with these pests that can be mitigated in subsequent years by rotating with crops that do not support populations of these insects.

SUMMER

- Continue cultivating weekly until corn is approximately three feet tall or, if cultivating with a tractor, until the tractor cannot pass over the corn without damaging stalks.
- Corn earworm: Deploy two traps per field by mid-summer. Small fields in close proximity could have one trap per field. Record trap captures weekly until a couple of weeks before harvest. Replace pheromone lures every two weeks.
- Corn rootworm: Randomly deploy four yellow, unbaited sticky traps per field and begin monitoring six to eight weeks after planting. Replace traps weekly and record number of corn rootworm beetles. An alternative is to check corn roots six to eight weeks into summer to evaluate feeding damage to roots. A 1–3 root injury scale is available to estimate yield loss.
- European corn borer: Deploy one trap per field before tasseling. Record trap captures weekly until two to three weeks prior to harvest. Replace pheromone lures every two weeks.
- Collect corn ear leaves at the silking stage and send to a laboratory for nutrient analysis.
- Monitor plants visually for fall armyworm damage in mid to late-summer especially where fields are weedy.
- Check corn for “green-corn stage,” i.e., corn is milky, yellow and sweet.

FALL

- Collect corn stalks one to three weeks after maturity, which is when the “black layer” forms at the base of the corn kernel, to send to a laboratory for end-of-season corn-stalk-nitrate tests.
- Improve the formula for kernel counts by establishing the number of kernels in one bushel of white corn.
- Complete yield and pre-harvest damage assessment.
- Protect drying corn from wildlife and mice by ensuring drying sheds are tight, using mouse traps.
- Track yields at key stages of the harvest and drying process to capture any post-harvest losses from mold or disease. This requires weighing the corn that meets and does not meet quality standards for processing.

Eric Burkness, Bugwood.org

Corn earworm adult.

Daren Mueller, Iowa State University, Bugwood.org

Western corn rootworm adult.

Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org

European corn borer adult.

Winston Beck, Iowa State University, Bugwood.org insectimages.org/browse/detail.cfm?imgnum=5465904

Northern corn rootworm adult.

Susan Ratcliffe

White corn at tassel stage.

Susan Ratcliffe

Oneida tobacco at Tsyunhehkw^.

Susan Ratcliffe

Group preparing to pick white corn to evaluate yield.

WINTER

- Spread manure on fields in the late fall or early spring. Document date of application, type of manure and total amount applied, e.g., lb./acre or yd./acre and field location. Manure samples can also be sent to testing laboratories for nutrient analysis so that manure can be applied at optimal rates to meet crop needs.
- Plant winter rye or other cover crops into harvested corn fields. If poor conditions exist, e.g., cold temperatures, high soil moisture, plant in early spring.

Food Sovereignty and Reclaiming Identity

"The more you put into the corn, the more the corn will give back."

—Laura Manthe

Growing traditional white corn is important to cultural and food sovereignty. Prior to colonization, white corn was part of everyday life for the Oneida. Due to Indigenous Peoples being banned from practicing their traditional ceremonies and being forced to assimilate, white corn went uncelebrated for decades.

Young people were not able to grow up tending the white corn or participate in the ceremonies. Indigenous communities have been glanced over or simply not acknowledged in history classes or within society. Growing white corn is like taking that pain and turning it into life. Tending the corn, singing corn songs and encouraging the corn has fostered growth and healing.

"To me it's like we are reclaiming our identity because so much has been taken away from us, and it's a way for us to take a stand and say we're going to do something about it."

—Laura Manthe

Manthe's group hopes the practice of growing white corn and traditional foods will spark healing within their community and other Indigenous communities for years to come. Growing white corn truly is about community, sharing, growing and learning together.

Growing into the Future

The Oneida Nation is located within an agricultural setting providing easy access to land for the white corn project. Manthe has received help from the community for weed management and harvest, and has established an insect and disease management program. In

addition, she has acquired useful equipment for easier planting, crop maintenance and harvesting, and uses cover crops and crop rotation.

Growing white corn is no easy task. Using good management practices is important to creating a successful white corn program. Each year the group learns more about how to maintain corn and the Ohe láku Among the Corn Stalks project. They now know what works and what doesn't. With help from those within the community, there is collective knowledge and a confidence that the Ohe láku Among the Corn Stalks project will continue well into the future.

Susan Ratcliffe

Tsyunhehkw^

Prior to Ohe láku Among the Corn Stalks Project, the tribal government of the Oneida Nation formed the Oneida Integrated Food System in 1994. This program supports cultural and food sovereignty in their community and was integral to establishing the Oneida Apple Orchard, Tsyunhehkw^ Farm and Cannery, the Nation's Farm, and a food distribution program.

The Tsyunhehkw^ Farm remains an important cultural resource in the community, where members can learn about sustainable and organic production and traditional methods of growing food. The 80-acre organic farm has produced chickens, vegetables and beef cattle. The cornerstone of Tsyunhehkwa^ includes six acres of Iroquois white corn that is processed each year into different food products at the cannery and sold in the retail store.

Jeff Metoxen (1964–2017)

This publication is dedicated to the life of Jeff Metoxen and all the people he impacted through his work at Tsyunhehkw^ Farm. Jeff Metoxen directed Tsyunhehkw^ with significant support from Kyle Wisneski and Ted Skenandore, up until his passing in 2017. Jeff was instrumental to generating support within the community for white corn. His early work at Tsyunhehkw^ led to the creation of the Among the Corn Stalks project. Tsyunhehkw^ Farm continues to provide cultural and educational opportunities for Oneida youth and community members interested in white corn and other traditional foods.

Susan Ratcliffe

Jeff Metoxen.

RESOURCES

White Corn Resource Website

Created by the IPM Institute to house resources specific to white corn production including pest scouting forms, and pre-harvest damage and yield assessment forms.

ipminstitute.org/publications/oneida-white-corn

Traditional Fertilizer, Modern Applications for Iroquois White Corn

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Oneida Nation

OHE LÁKU AMONG THE CORN STALKS

TSYUNHEHKWA WHITE CORN PROJECT

PO Box 365, Oneida, WI 54155
(800) 236-2214
owc@oneidanation.org
oneida-nsn.gov/resources/wellness/oneida-white-corn/

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glipm@greatlakesipm.com
www.greatlakesipm.com/

IPM Institute of North America, Inc.

TECHNICAL ASSISTANCE FOR WHITE CORN PRODUCTION

211 S. Paterson Street, Suite 380
Madison, WI 53703
(608) 232-1410
info@ipminstitute.org
www.ipminstitute.org

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Authors and Contributors

Lead Authors: Peter Werts, Josie Dillon and Dr. Thomas Green, IPM Institute of North America.

Contributing authors and editors: Laura Manthe, Dr. Joanie Buckley, Oneida Nation; Dr. Susan Ratcliffe, North Central IPM Center.

Graphic design: Gretchen Wieshuber, Studio2D.com.