

Indigenous food systems as a promise to feeding the future: Learning from community-based research and Initiatives

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Presentation Goal:

- Understanding Indigenous Food Systems (IFS); Challenges and community-based initiatives to revitalize them

Expectation is :

- Potentials of Indigenous food system in feeding the future
- Video from FRCN (Short version)

Name of Initiative	When	Study sites / Communities
Indigenous Knowledges in Food Security and Sustainability	Oct 2012 to June 2013 (Funded by SICI) June- Dec 2013 (Phase-II, Student Research)	Juang (Odisha) and Fisher River Cree Nation (Manitoba)
Understanding Farmers perspective of Indigenous Agricultural Knowledge	June- September 2012 (Funded by IDRC)	Anchetty, Tamil Nadu, India
Understanding and Enhancing Local Agricultural Knowledge for Food Security through School competitions	June- Sept 2012 (Funded by IDRC) July- Sept 2013	Anchetty, Tamil Nadu, India Dhikur Pokhari, Nepal
Changes and Challenges faced by rural and local communities to maintain traditional crop-based food security	July- Sept 2012	Kullu District, Himalayan Region, India
Food Habit changes and Dietary Diversity Nepal	Sept-Dec 2013	Jhumla, Nepal
Role of Indigenous Food System in meeting food security & medicinal needs	July-Oct 2015	Kwall District, Bassa LGA, Plateau State, Nigeria

Name of Initiative	Methods
Indigenous Knowledges in Food Security and Sustainability	Oral History Interviews (n=17 at FRCN, Manitoba) , Focus groups (n=3) and Wild food recipe events (Odisha, India)
Understanding Farmers perspective of Indigenous Agricultural Knowledge	Photo-voice in two groups (n=29) and follow-up interviews in two villages
Understanding and Enhancing Local Agricultural Knowledge for Food Security through School competitions	School competitions (Small millets and associated crops) among 52 students, follow-up interviews with in two villages
Changes and Challenges faced by rural and local communities to maintain traditional crop-based food security	60 farmers and 10 Local food market Vendors – 3 villages
Food Habit changes and Dietary Diversity Nepal	Eight focus group discussions in three villages , n= 109 participants
Role of Indigenous Food System in meeting food security & medicinal needs	Oral History Interviews, Sharing Circle (30 participants) AFN Nov 2019 Shukla , U of Winnipeg



- Ibre
- Eleusine coracana*
- Thick paste with soup, porridge, Gruel
- Photo credit: Majing Oloko

- First choice for infant complementary food
- “Farm food”

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TABLE Nutrient composition of sorghum, millets and other cereals (per 100 g edible portion; 12 percent moisture)

Sources: Hulse, Laing and Pearson. 1980: United States National Research Council/National Academy of Sciences. 1982. USDA/HNIS. 1984

Food	Protein ^a (g)	Fat (g)	Ash (g)	Crude fibre (g)	Carb (g)	Energy (kcal)	Ca (mg)	Fe (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)
Rice (brown)	7.9	2.7	1.3	1.0	76.0	362	33	1.8	0.41	0.04	4.3
Wheat	11.6	2.0	1.6	2.0	71.0	348	30	3.5	0.41	0.10	5.1
Maize	9.2	4.6	1.2	2.8	73.0	358	26	2.7	0.38	0.20	3.6
Sorghum	10.4	3.1	1.6	2.0	70.7	329	25	5.4	0.38	0.15	4.3
Pearl millet	11.8	4.8	2.2	2.3	67.0	363	42	11.0	0.38	0.21	2.8
Finger millet	7.7	1.5	2.6	3.6	72.6	336	350	3.9	0.42	0.19	1.1
Foxtail millet	11.2	4.0	3.3	6.7	63.2	351	31	2.8	0.59	0.11	3.2
Common millet	12.5	3.5	3.1	5.2	63.8	364	8	2.9	0.41	0.28	4.5
Little millet	9.7	5.2	5.4	7.6	60.9	329	17	9.3	0.30	0.09	3.2
Barnyard millet	11.0	3.9	4.5	13.6	55.0	300	22	18.6	0.33	0.10	4.2
Kodo millet	9.8	3.6	3.3	5.2	66.6	353	35	1.7	0.15	0.09	2.0

How Indigenous Food can help enhance nutrition and health: FRCN



- Deer Liver
- Excellent source of protein, iron, vitamins A & C
- Photo credit: Karen Cooks| Canadian Geographic

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FRCN:



- Moose Meat
- Excellent source of protein, good source of iron and fair source of vitamin C
- Photo credit: Aglace Chapman Education Centre| Bangor daily news

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OUR ELDERS ARE LIVING LIBRARIES !

- ▶ One of the main things we noticed in Fisher River is that there seems to be a difference in the way people ate when your grandma or grandpa were little—look at the difference in common foods eaten in the past compared to today! FRCN elders were stronger back then because they ate all these food!-



LESS TIME NOW SPENT IN BUSH?

- ▶ “Look after the older ones – they were able to go out there and work with them. We used to leave school early, back then we could get out of school early. We’d write our exams early. And move out there. And then in the fall we’d move back home and it would be freezing. Sometimes the river would be frozen we couldn’t even come in with the boat we had to use the bay to walk up and go down horses – well he did, not us, we were kids. We’d get the boat and plow it home with all our stuff. And then we’d start school late in the fall. We had a short school year. But then we had to start going to school full term. All of the sudden the government said ‘that’s enough, you have to go to school’. That’s when the family allowance came in” – FRCN Elder



TRADITIONAL FOOD PRODUCTION AND CONSUMPTION

- Many of these foods were grown and eaten by the local people for their nutritional and medicinal values. We counted at least 70 different types of traditional foods and medicines that were talked about throughout the interviews that come from Fisher River !
- In those times, baking or boiling meats was a favorite way of cooking! Rarely were foods fried.
- Many elders talked about how the foods from the store aren't always the best options (for taste and for your health).
- The way families gardens' were created, plants were harvested from the land, and animals were trapped and hunted was a way of life!- No diabetes then !



FOODS EATEN IN THE PAST

Fish	Fisher Suckers Bass	Pickeral White Fish Meri	Sauger
Wild Game	Muskrat Beaver Deer	Rabbit Prairie Chickens Duck	Squirrels Moose Goose (& their eggs too!)
Vegetables / Garden Harvest	Corn Potato Squash	Beans Tomatoes Lettuce	Carrots Onions Rhubarb
Livestock / Farm Animals	Cows Chickens	Pigs Turkeys	
Bush Harvest / Medicines	Berries Sage Sweet Grass Burdock Red Clover	Labrador Tea Wehgeh Kinikinik Bullrush Fir Gum	Nettle Juniper Tamarac Cedar

Less land-based foods eaten today than in past, even older generations



FOODS EATEN TODAY

FISH	Suckers Pickeral Saugers White Fish
WILD GAME	Goose Moose Deer
STORE-BOUGHT FOODS	Vegetables Fruit Domestic Meats (like beef, pork, chicken) Ready to eat meals & other goods

CHANGING DIETARY PREFERENCES TO MARKET BASED FOODS

- ▶ “When I was growing up, pretty well the same things. We had the stores when I was growing up. We bought things from the store like we do today, but basically, the traditional foods we ate are less and less”
- ▶ On the individual level members of the community get “brainwashed” by big business [*referring to agribusiness*] (9:30). Gardens were prevalent in the community before. “Some had gardens, somebody had pigs, somebody had cattle, some had geese or ducks or different things – all that stuff was healthy. That [agro-business and big business] makes a big change in our health.



TRADITIONAL COOKING AND FOODS OF LONG
AGO GAVE US HEALTHY LIFESTYLES AND
ALLOWED US TO LIVE LONG LIVES.

KAYASI PIMINAWASOWINA MAWACH
ÉKIMINOSKAKOYAK NÍYAWINAN ÉKWA MÍINA
KINOWÉS NIKI MASKOWI PIMATISINAN.

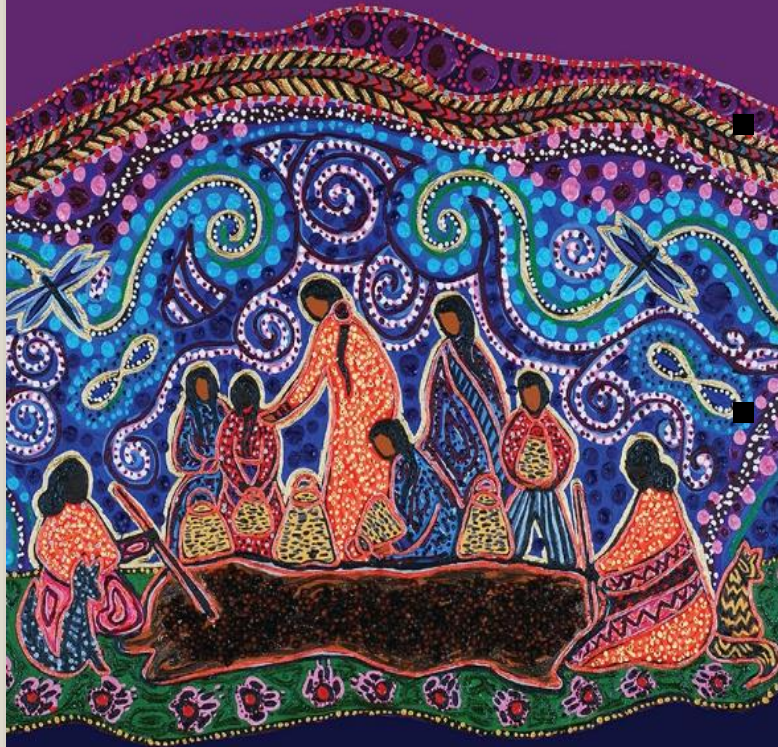
THE UNIVERSITY OF
WINNIPEG



INDIGENOUS FOOD SYSTEMS

Concepts, Cases,
and Conversations

Edited by
Priscilla Settee
and Shailesh Shukla



ABOUT THE TEXT

- Explores a diverse array of Indigenous food systems from across Canada, including Anishinaabeg, Asatiwisipe, Cree, Métis, Migmag, and Tsartlip.
- Seeking solutions to food insecurity and well-being for current and future generations,
 - promoting an understanding of the barriers and challenges to Indigenous food systems and presenting ways used to reclaim cultural identity and food sovereignty.
 - Offering in-depth case studies and critical conversations, *Indigenous Food Systems* reinforces the importance of the revitalization of Indigenous food knowledges for the health and well-being of Indigenous and Canadian populations.

Indigenous food systems in Canada: Colonial past, contemporary changes, and future hopes

Challenges to Indigenous Food Systems

- Colonial legacies of government laws and policies
- Dominance of agriculture-centric discourses and practices
- Lack of transmission of Indigenous food knowledges
- Changes in dietary preferences due to modern lifestyles
- Wide-scale support for market-based/ processed-food focused on colonial food practices

Features of Indigenous Food Systems

- Relationships, reciprocity, and respect
- Strengthening of cultural identities
- Detailed Indigenous food and nutritional knowledges
- Distinctive ways of knowing, and Indigenous languages
- Enhances community food security and Indigenous sovereignty for the present and the future

Toward Revitalizing Indigenous Food Systems

- Enhancing food security and Indigenous food sovereignty
- Mobilizing diverse voices, actions, and nations to promote Indigenous food systems
- Reviewing and reformulating existing laws and policies to create nurturing environment for Indigenous food systems
- Restoring respect, relationships, and reciprocity through Indigenous resurgence
- Actively engaging Indigenous leadership in promoting Indigenous food-focused initiatives

Source: Settee and Shukla (2019). Forthcoming



Indigenous food systems: opportunities for feeding the future

- Indigenous food systems (IFS) provide benefits beyond nutrition (Sense of cultural identity and self-determination)
- Many Indigenous foods (IF) are climate resistant (e.g. millet and sorghum and preferred by all generations for their taste and healthy appeal)
- IFS promote the principle of sustainability- Many Indigenous food crops are climate-compliant(e.g. small millets)
- IFS have the potential to meet current/future food insecurity and build local economies
- Cross-cultural, Inter-generational and interdisciplinary learning and research can potentially increase the prospects of IFS. Youth engagement is key to nurture and revitalize IFS

Current Research and Teaching Focus: Revitalizing Indigenous Food Systems and Associated food knowledges and voices: Designing youth-focused participatory research and Innovations

Name of Initiative	Methods
<p>Decolonizing the food guides: Learning from Indigenous experiences with food guides : Fisher River Cree Nations,</p>	<p>Oral History Interviews with Elders, Talking Circle with Indigenous youths on reserve, Focus groups with local school teachers and administrators and a band council members</p>
<p>Towards Indigenous food focused curriculum Innovations : Brokenhead Ojibway Nations, Manitoba</p>	<p>Oral History Interviews with Elders, Talking circles with local youths, Workshops with school teaches and Photo-voice with youths</p>
<p>Land-based courses on Indigenous Ethnobotany and Indigenous food systems</p>	<p>Students projects : Traditional food sheets and data base, Traditional food Pod cast, Photo-essay, Traditional recipe calendar, Plant profile cards)- All of these gifted back to community.</p>

Sample UW Students Projects : Land-based learning

Colt's Foot (Moose Ears)

Petasites fridigus var sagittatus | Asteraceae Piskchtepask (Cree) meaning “separate leaf” Niyokatayiniya (Cree) meaning “frog leaves”

Medicinal/Indigenous Use

- Leaves are used in teas to treat asthma
- Leaves used to draw out poisons and toxins
- Leaves are boiled with weckay, mint, rosehip and honey for cough syrups for coughs and sore throats

Indigenous Ethnobotany Use

- Cree women healers used the root in teas to encourage menstruation for women that had lost their menstruation cycle due to cold or shock. The leaves were also used for sanitary products by working them in one's hands until cotton like.



Preparing the Medicines

- Dried leaves are prepared with hot water. Precaution as too high of a dosage can cause liver issues.

Story Associated

I was taught how to pick Colt's foot from elder Audrey. She explained that it is best to pick the plant far into the bush to ensure they are the healthiest plants that have not been harmed by car emissions. It was an amazing learning experience to go out of my comfort zone to pick deep in the forest to protect the plants closer to the road that needed time to heal and grow.

Identification/ Doctrine of Signature

- Grows 6-24 inches
- Inflorescence: capitulum, white petals
- **lung shaped leaves - Doctrine of Signature**

Habitat

- Grows in swamps and open forests between June and August; particularly along shaded forests

Harvesting

- The leaves are cut near the base of the plant and hung in bundles of 3-5 for drying

Contributed by : Savanah, IS-3201 student, summer 2019

CANADA GEESE (*Branta Canadensis*)



Canadian Geese are herbivores, but alternate what they eat depending on the season and their nesting location. In the fall/winter, Canada Geese will eat grain to gain fat and stay warm. In the summer, Canada Geese typically eat young sprouts of grass for protein. Finally, for the spring season geese will eat corn, cereal crops, and legumes for a protein reserve. Canada Geese have been observed to eat alkali flies, but were believed to be sampling the flies, and not consuming them regularly.

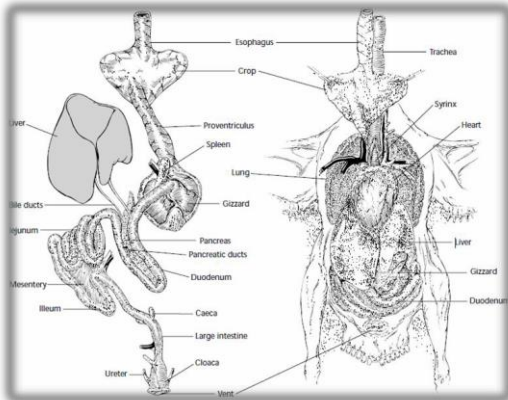


Figure-Canada Geese eating short grass

To concentrate Canada Geese in a specific area, Wemindji Cree Nation have controlled burns to encourage growth of young grass shoots. Some communities also spread corn around a certain area to attract geese for hunting.



Figure-An example of a controlled burn in Wemindji Cree Nation. (Sayles, 2015, p.301)



Geese face challenges with overgrazing and short growing seasons, which affect the nutrition, growth and survival of goslings. However, Canada Geese seem to be able to adapt to low quality forage due to their large body and gut requiring less nutritional value than smaller birds.

"It has always been the way, to hunt geese, snow geese. It was always our way of life."

- Mary Katapatuk, Waskaganish, Quebec

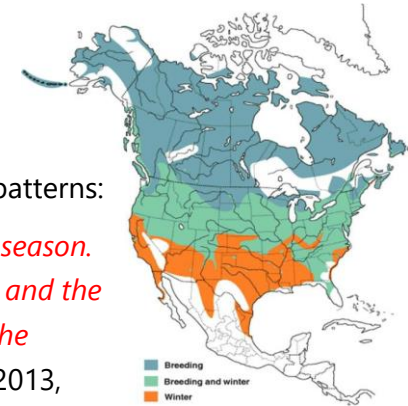
Figure- Anatomy of typical avian digestive system

NUTRITION



Figure-Canada Geese in an urban environment

Canada Geese are adaptable to a variety of environments. Generally, Canada Geese nest around marshes, islands, cliffs and trees. Canada Geese will always favour locations near water for nesting, since water is used for drinking, preening, cleaning and protection from land-based predators.



Cree hunters in James Bay area have noticed changes in migratory patterns:

"Well, the geese ... last spring ... [were] very scarce. It was a very bad season. We are not sure. Well they said that the spring came all of a sudden, and the birds don't like that, so they went right past this region... we rely on the geese, and now there is hardly any." -Participant #37, age 50 (Tam, 2013,

p.448)

Figure- A map of Canada Geese migration

WATCH- Cree bring the goose hunt south due to migratory path change

<http://www.cbc.ca/player/play/2382802981>

Dene Tha' hunters in Alberta have noticed a decrease in the areas where they traditionally hunt geese. They attribute the decline to the oil/gas industry operating on their well sites, as well as increased air traffic around the lakes.

To maintain popular hunting spots, Wemindji Cree Nation created "corridors" that funneled Geese's flight path into diked ponds. This allowed hunters to keep up with the land by not having to create new hunting spots on a frequent basis.



Figure- A corridor is approximately 70 metres wide, 100 metres long. (Sayles, 2015, p. 301)

The main predators of the Canada Geese include humans, eagles, coyotes, raccoons, skunks, bobcats, and foxes, as well as gulls, crows, ravens, and magpies. The main cause of mortality for young goslings tends to be predation, but hypothermia,

Canada Geese range from 76 cm to 109 cm (30-43 in) in size. Their typical wingspan ranges from 1.2 m to 1.7 m. Canada Geese can weigh anywhere between 3 kg to 9 kg, depending on nutrition as a gosling. Canada Geese have an average lifespan of 24 years in the wild.



Figure- Canada Goose Preening, Photo/Raewyn Adams

Due to the oil/gas industry, Dene Tha' hunters have less waterfowl to hunt, as a form of avian botulism killed approximately "tens of thousands of migratory waterfowl on Zama Lake in 2000" (51). While lakes in places like Manitoba do not have oil wells, pollutions still has a large impact on the Canada Geese who nest by water.



Figure- Eagle fights Canada Goose, Photo/Florence Lily

WATCH- Geese attacked by Eagle

<https://www.youtube.com/watch?v=rDqOzrTAzY0>

Climate change has affected many migratory paths of birds. The bald eagle has caused a decline of the Canada geese population in certain areas:

"Now we [have] lots of bald eagles here and it's affecting the geese out in the bay too, they are scared of bald eagles. You don't get much birds around if you see, if there is a bald eagle hanging around in the bay. You never see geese there." – Participant #10, age 45 (Tam, 2013 p.448)

While the Canada Goose population is healthy, a rising Bald Eagle population and earlier, warm spring season is causing a large displacement of Geese.



Figure- Oil Well in Zama Lake, Photo/Chalifoix

Websites of Interest

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Respect the Sacredness of food

- “You know in life nothing ever stays the same – there are always changes...in the area of life...Our beliefs and values might change when we were young but the natural laws never change – the creator – those never change never. One of those is respect. Respect for the food we eat. Respect for the plants we eat. If we don't respect that food or that plant it might hide and we can't find it.

Thank you- Ekosani !



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