The Future of Agriculture: INDIGENOUS FOREST GARDENS

By Bhavya

Intro:

Food production, specifically industrial agriculture is having massive negative effects on our environment but looking to the past for answers might hold the solution we are looking for. We are in a fight against nature when we could be working with it- working as a part of it. Taking inspiration from strategies that *work*. The future of sustainable agriculture has already happened: Indigenous Forest Gardens.

Industrial Mainstream Agriculture: The Problem:

Decades of industrial farming have taken a heavy toll on the environment, and we are starting to experience serious consequences, including loss of biodiversity, pollution and climate change.

Loss of Biodiversity: Agriculture is the #1 cause of deforestation, including livestock agriculture. Monocropping is one of the most widespread farming practices, as it is one of the most profitable, but it leads to soil depletion, eventually making the soil unusable. Forests are chopped down to make room for the same few crops. This endangers species and destroys ecosystems.

Pollution: Lack of biodiversity also causes vulnerability to pests, requiring heavy pesticide and fertilizer use. These often include many greenhouse gasses and aren't distributed in a responsible manner, with lots of them escaping and polluting our air, soil, atmosphere, and waterways.

Climate change: Food production accounts for more than a quarter (26%) of global greenhouse gas emissions from pesticides, fertilizers, gas tractors, and natural resources use. Industrial agriculture uses excessive amounts of fresh water, and 70% of freshwater withdrawals are used for agricultural purposes.

These mainstreamed agriculture practices are going against nature- hundreds of millions of years of adaptation and evolution to come up with solutions that work: ecosystems and biodiversity and forests.

Forest Gardens- The Solution:

Forests have been sustaining plants and wildlife for longer than humans have existed. Forest gardens take inspiration from natural forest ecosystems. They consist of layers, like a forest does. These layers usually consist of trees, shrubs, herbs, and crops. Forest gardens are very low maintenance- after the initial planning and execution, use less land due to the vertical aspect, are largely self-sustaining, need

less resources- this means less water usage and little to no fertilizer and pesticide usage and are incredibly biodiverse. They are ultra resilient and adaptable and in a world when the climate is changing faster than ever, mainstream agriculture just will not cut it. Not only are they not contributing to climate change like mainstream farming but because of the integration of trees and other plants they are also sequestering carbon (the natural process of removing carbon from our atmosphere) from our atmosphere.

A Look Into the Canadian History of Indigenous Forest Gardens:

Forest gardens are not new; they have actually been around for centuries, maybe even thousands of years- right here in Canada. An example of this is the indigenous forest gardens in British Columbia from more than a century ago. This discovery is fairly recent and the forest gardens in BC have been untouched for over 150 years, yet they have still self-sustained themselves. Ethnobiologist and archaeologist Chelsey Geralda Armstrong said in an interview with 'living on Earth' that one of the reasons these forest garden patches stand out is because "*at the right time of year, they are fruit paradise*" and "*a lot of medicinal species grow as well... such as wild ginger*" she said that it's obvious these are made with the intent to be edible forests. She explained how these might have been made or maintained *" ... people were managing for succession. These types of forest management practices are basically utilizing and capitalizing on natural ecosystem processes. So things like wild raspberries, black huckleberries, Alaska blueberry, oval leaf blueberry, all these kinds of plants that grow in forest gardens are locally available.... letting those things come back, keeping the competitors out, and then enhancing them with new species, like trees and shrubs like Pacific crabapple, or hazelnut, which we*

know were transplanted quite long distances." This shines some light on the extensiveness of indigenous knowledge. There is a need for indigenous knowledge while coming up with preservation solutions today. Indigenous peoples used their knowledge of the land and outdid natural ecosystems to sustain their community.

"A lot of functional diversity studies have a 'humans are bad for the environment' approach," Armstrong told Science. "This shows humans have the ability to not just allow biodiversity to flourish, but to be a part of it."

Forest Gardens in your Community and Schools:

A lot of this is asking for global change, fundamental change, but what can you do? As a young person in your community? Some Port Elgin Regional 8th grade students made a community food forest (alternate name for forest garden). Initiated by former Grade 8 student Marco Onichino, the project began as an English assignment focused on environmental impact. Marco's vision expanded into a thriving perennial garden filled with fruit trees, berries, and herbs, designed to flourish for years. This student-led initiative addresses environmental concerns and local food insecurity. Having a community food forest can help provide cheap and healthy food in times when grocery prices are higher than ever before. Collaborating with EOS Eco-Energy, similar food forests were installed across the region, showcasing the potential of community-driven projects to promote sustainability and provide accessible, nutritious food. You could start a garden at your school or make it into a community initiative, talk to local organizations, and make a difference. All you need is passion and an idea. Anyone can make positive change.

Conclusion

When we think of the future or solutions to environmental problems- technology or innovation might come to your mind. But looking into the past, the strategies that have succeeded can help us make our communities and our world greener and more sustainable. Facing problems like climate change and loss of biodiversity, forests and wildlife- we need diverse ideas, diverse opinions and big change.

References:

Environmental Impacts of Food Production by Hannah Ritchie, Pablo Rosado and Max Roser
https://ourworldindata.org/environmental-impacts-of-food

10 things you should know about industrial farming
https://www.unep.org/news-and-stories/story/10-things-you-should-know-about-industrial-farming

How Does Agriculture Affect Deforestation? By Grace Hussain July 13th, 2022
https://sentientmedia.org/how-does-agriculture-cause-deforestation/

Here's Everything You Need to Know About Monocropping (And How It's Hurting the Environment) BY KATIE GARRITY
https://www.greenmatters.com/p/what-is-monocropping#:~:text=Monocropping%20is%20the%20agricultural%20practice,which%20is%20known%20as%20polyculture.

Key benefits of forest gardens
https://nationalforestgardening.org/benefits-of-forest-gardens/key-benefits/

How farming in forests could sustain the planet by Sofie Yeo
https://www.bbc.com/future/bespoke/follow-the-food/how-farming-in-forests-could-sustain-the-planet.html p[0=b87

Ancient Indigenous forest gardens still yield bounty 150 years later: study
https://nationalpost.com/news/canada/ancient-indigenous-forest-gardens-still-yield-bounty-150-years-later-study

First Nations Forest Gardens
https://www.loe.org/shows/segments.html?programID=21-P13-00030&segmentID=4

‘TODAY WE HAVE GARDENS BUT BEFORE WE DESIGNED... ENTIRE LANDSCAPES’
https://wwf.ca/stories/indigenous-food-forests-traditional-knowledge-conservation/

Photo references: https://straydoginstitute.org/industrial-agriculture/ and ‘The Sts’ailes forest garden near Vancouver, British Columbia seen from the air. Nick Waber’