

# ECOLOGY ACTION'S GARDEN COMPANION

GROW BIOINTENSIVE® News from Around the World



**SPRING 2022**

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# The Jeavons Center Mini-Farm Report

By John Jeavons, Ecology Action Executive Director

El Consejo Universitario de la  
**Universidad Nacional Agraria "La Centenaria del Agro"**  
tiene el honor de invitarle a la

••• Ceremonia  
**Doctor Honoris Causa**  
"en Agroecología"

a

••• **John Jeavons**  
Creador del método GROW BIOINTENSIVE  
y Director de Ecology Action

Martes 15 de marzo 2022  
09:00 am California - EEUU  
10:00 am Nicaragua (GMT -6)

Virtual

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Conferencias y Discursos  
Oficiales - UNA Nicaragua

*I am delighted to announce that I was awarded an Honorary Ph.D in Agroecology by the Universidad Nacional Agraria (UNA) of Nicaragua. Below, you can read the University's justification statement for selecting me to receive the Honorary Doctorate, followed by my speech from the presentation ceremony. You can see more about the ceremony here: [bit.ly/UNAJohnJeavons](https://bit.ly/UNAJohnJeavons) and watch a short video that was shown at the ceremony here: [youtu.be/V4DeXD8PK4A](https://youtu.be/V4DeXD8PK4A)*

*Proposed justification for the award of a Honorary Doctorate in Agroecology to John Jeavons*

Considering that:

**J**ohn Jeavons is an American scientist who has devoted most of professional life to the development of an ecological method of production of food.

John Jeavons as part of his commitment to humanity has created the Biointensive Farming method, an organic farming method that does not use agricultural machinery, or agrochemicals and that is being used in more than 140 countries, contributing an alternative to conventional food production for thousands of farming families.

John Jeavons has created a method that has the property of reclaiming degraded soil and which is an excellent choice for improving the food security of rural families with poor soils, limited availability of water and financial resources.

John Jeavons has created a method based on scientific research with more than 40 scientific publications

and is the author of the best-selling book on sustainable farming *How to Grow More Vegetables, Fruits, Nuts, Berries, Grains, and Other Crops Than You Ever Thought Possible On Less Land Than You Can Imagine*, which has been translated into Spanish, German, French, Hindi, Russian, Arabic and Braille, soon in Italian and Kiswahili, with more than 550,000 copies printed all over the world.

That John Jeavons in 2018 visited the UNA where he gave a lecture on biointensive farming and verified during said visit that Nicaragua is the country where the use of the biointensive farming method is more widespread, having had as its starting point the farm El Plan-tel de la UNA.

That John Jeavons, due to his advanced age, no longer plans new visits outside his native United States and that his visit to Nicaragua in 2017 was special and as part recognition of the work carried out in Nicaragua.

That John Jeavons and two close collaborators from Mexico and the United States facilitated the creation of the first Biointensive Farming center in Nicaragua on the 9th of April 2013 at UNA and from that beginning 26 centers have been created to date demonstrations on the method that have trained thousands of farmers.

That John Jeavons will be 80 years old this March and that he deserves fair academic recognition for his work for humanity.

That John Jeavons believes in the National Agrarian University of Nicaragua and knows that the UNA would be proud to have among its honorary doctors a scientist who, despite his great professional achievement in creating the Biointensive Farming method, has managed to continue his work in solidarity with humanity, as a simple, modest, and fraternal person.

Taking stock of these contribution of John Jeavons, the UNA University Council in its session number 719-202 agreed to unanimously approve the award of a honorary Doctorate in Agroecology to John Jeavons for his contribution to humanity for the development of the Biointensive Soil Cultivation method.

Given in Mangua on the fifteenth day of the month of March 2022.

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*Honorary Cause Ph.D. Award Speech*

I am very grateful to each and every one of you here today, for being a part of the growth of Biointensive Mini-Farming around our beautiful planet Earth. Together we have accomplished much to alleviate hunger and scarcity, and together we are creating a future of abundance for Nic-

**ECOLOGY ACTION'S GARDEN COMPANION**

aragua and our world. It is an honor what we all have accomplished, are doing and get to do together in the future!

Today is my 80th birthday, and is the 51st doing this wonderful work with so many good people! A half century of people caring about the Earth, its ecosystems, resources and people. “*We are All One Family and the Earth is Our Home!*” Let us create a good home!

Nicaragua has been using GROW BOINTENSIVE® Closed-Loop Sustainable Mini-Farming nationwide for almost as long as I have, and has done a very effective job of this! In fact, Ecology Action has a Self-Teaching Booklet in Spanish and English on this experience for others to benefit from: *GROW BIOINTENSIVE: A Global Pattern for Feeding the World — A 46 Year Perspective and a Plan for the Next Decade*. This experience was wonderful for me to learn from during UNA’s Biointensive Week in 2017! Those who have made this possible include: Rector of UNA Dr. Alberto Sediles Jaen, Roberto Blandino, John Wyss, Michael Richardson, and especially the Nicaraguan people, who have made all the difference. Those who have made Ecology Action’s overall work possible for so many years have included, with the grace of God: Alan Chadwick, Cynthia Raiser Jeavons, Juan Manuel Martínez Valdez, Latin America Director, Agustín Medina, Marisol Tenorio, Samuel Nderitu and Peris Wanjiru, Africa Co-Directors, Carol Cox, Shannon Joyner, Mary Zellachild, Matt Drewno, Melvin Castrillo, John Beeby, Steve Moore, EA Staff, Apprentices and Interns, and millions of people around the world where the method is being used successfully.

There are a few themes I would like to share with you for us all to use as we continue forward together. Our mind set is essential to the success of our endeavors. We choose our mindset.

- 1) We can come from Scarcity or Abundance: It is known that if one does things from a feeling of Scarcity, even in a situation of Abundance, that we are only able to access 2% of our innate creativity. And, that if we proceed from a feeling of **Abundance**, even in a situation of Scarcity, we are able to access 80% of our creativity.
- 2) **The Real Green Economy is Photosynthesis.** The true gift of the sun is to nourish life on the planet Earth.
- 3) With our GROW BOINTENSIVE Closed-Loop Sustainable Mini-Farms and Mini-Ag Teaching/Training Centers we are creating “Oases of Hope”/“Lugares de Esperanza”!

Our current world crises of:

**SPRING 2022**

- Only 22 years remaining of **Farmable Soil** on the Earth. How old are you? It is not much time!
- A decreasing amount of **Water** per person in the World. The UN has estimated that by the last day of 2025, not long from now, compared with the first day of 2016, 5.5 billion people are “at risk” of starvation due to not enough water to grow any, or enough, food. This is ¾ of the World’s people!
- A shortage of **Farming Nutrient** in both organic and chemical fertilizer form globally. Where are your nutrients going to come from?

All these are forcing us to be more efficient in creating a better future for all.

- GROW BOINTENSIVE Closed-Loop Sustainable Mini-Farming uses much less Farmable Soil to grow **Complete Balanced Diets for People and the Soil**, in 4,000, 2,000 or 1,000 sq. ft. depending on the quality of the soil and the quality of one’s skill, if the diet crops are chosen carefully. Ecology Action’s Booklet 32, *Designing a Complete GROW BIOINTENSIVE Mini-Farm*, shows how to accomplish this. And, according to an academic study, GROW BIOINTENSIVE can “**Grow Soil**” in this process 60 times faster than in Nature.

On the average the 90% of the world’s people who live in developing countries have about 8,000 square feet to grow their diets on. To keep the world sustainable, maintaining a proper amount of plant and animal diversity, half of this farmable soil will need to be left in wild. The remaining 4,000 sq. ft. are capable of, when using the sustainable Biointensive system, and with some effort, to grow complete diets.

- GROW BIOINTENSIVE, used properly, uses a **Fraction of the Water**: 1/8 the water per pound of vegetables and soft fruits produced, 1/3 the water per complete diet grown in general, and 1/5 the water per complete diet grown, given the farming methods used in developing countries, where 90% of the world population live.
- GROW BIOINTENSIVE, working with the life forces of nature and soil. uses as little as 1/2 to no purchased nutrients at a time of diminishing global supply of farming nutrients per person.

**Let’s Work Together To:**

**Grow Hope**

**Grow Abundance**

**Grow Biointensive!**

## New Growth: A First Time Gardener's Reflections On Their Time at Victory Gardens for Peace

By Lilah Mehri, VGFP 2021 6-Month Intern



I arrived in Mendocino at the beginning of June, having just graduated from university two weeks prior. I was living in the heart of Los Angeles, California and experienced a complete energetic shift with regard to where and how I was living.

About a year earlier, through my spiritual practices and journey, I found myself being called towards working with the land. I wanted to develop a relationship with plants and soil, as well as learn how to grow food in order to help myself and others become food sovereign. Up until June I had only ever lived in cities and was witness to the extreme disconnect that most people in the United States have with our food production system. When you eat a meal, how many of us question, where is this food coming from? What hands grew this food? What soil and resources were required to do so? I also saw how the misuse of land in urban spaces perpetuates this inaccessibility of both nutritious food and of the knowledge surrounding our production and consumption habits. But there is great innovation on the front of regenerative agriculture, which to me inspires a lot of hope.

Though I had no prior gardening experience, I arrived in Mendocino with an open heart and an eagerness to literally get my hands dirty and start my journey with plants.

One of the first things I realized once being in the Victory Gardens daily was that the garden itself pro-

vides a tremendous space for education. Not only does gardening require and strengthen skills in math and science (planning, calculating, observing, attunement to biology, etc.) but also it deepens more abstract skills such as reciprocity, trauma healing, responsibility, patience, communication, and re-establishing the role of the human within nature and her cycles. I wish that education systems across the country prioritized the garden as a space for growing, not just of plants but also of people, as its countless lessons can and will be taught when one sets out to have a reciprocal relationship with the land.

The GROW BIOINTENSIVE® method used at Victory Gardens for Peace is a very specific approach to growing food; however, many aspects of the method are applicable to all climates, gardens, and gardeners. For example, in GB we sow seeds into flats, 3-inch-deep boxes made from scrap redwood or cedar, rather than into the more traditionally used rows of plastic cells. This slightly different approach makes a great difference in both resource use and plant growth. The seedlings are offset from one another and plastic walls do not separate them, more easily facilitating growth and communication. Moreover, one only has to water the area of the flat until the seedlings are ready for transplanting, rather than use the water required for an entire bed when seeds are directly sown into the ground.

These past several months have been challenging and rewarding. Every day in the garden has offered me lessons, insight, and joy. And while I have experienced peace and serenity living in Mendocino, I cannot help but to continue to consider the ways in which GB and gardening in general can be better implemented in urban and/or suburban settings. For example, the Maryland Agricultural Reserve is a protected portion of land (93,000 acres) outside of Washington, DC, my hometown. The Ag Reserve was originally intended be the land that would feed the city's residents, the idea being that food need not travel far to feed people. Unfortunately, while the reserve and its farmers are still protected, the area does not actually feed the city. Instead, it is still reliant on importing food from places like California. But what a wonderful prospect! Perhaps we can work off of this original concept and find creative means of feeding cities with the land they occupy or its immediate surroundings.

In the garden, I think on more ways we can improve our relationship with our food. How can we turn empty lots into functioning gardens, where our roots and

our hands can go directly into the earth? How can we strengthen community gardens as we imagine new, beautiful and equitable ways of living, something abolition invites us to do? How can we improve gardening education, making it standard practice of life and knowledge sharing? How can we make information as digestible for the masses as possible, through media such as art? I see an infinite number of benefits to gardening; improved nutrition, physical activity, intellectual stimulus, a strengthened understanding of both self and connectedness to all, a deeper understanding of our climates and soils, an emphasis on carbon sequestration and regenerative agricultural practices, and an increase in food security. It is for us to be able to realize the potentials of a reciprocal relationship with plants if we are able to return to and remember our roots on this planet. There are many dark headlines and data points that may instill greater fear in people as we continue learning more about our planet and our actions. But in return there too is an abundance of hope. To tap into this abundance we must look inwards to our souls and down to our soils, empower voices that have been silenced yet remain resilient in our remembrance of oneness, and listen rather than dominate the needed conversation with the rest of nature as we move forward. I am thrilled to be taking the knowledge I have gained in this internship with me to collaborate with others in finding creative ways to re-approach growing and eating from a place of love rather than of fear. ●

## Maine Passes First “Right to Food” Amendment in U.S.

By Sara Burrows, [returntonow.net](http://returntonow.net)

*The following article on the important topic of food sovereignty was published at Return to Now in 2021: [returntonow.net/2021/12/23/maine-passes-first-right-to-food-amendment-in-u-s/](http://returntonow.net/2021/12/23/maine-passes-first-right-to-food-amendment-in-u-s/).*

Citizens of Maine now have a constitutional right to grow, raise, process, barter, trade and sell their own food without government interference. The State of Maine just took cottage food laws to the next level.

In addition to being allowed to sell non-perishable jellies, candies and baked goods prepared at home, the citizens of Maine now have a constitutional right to buy, barter or trade foods like raw milk straight from the cow and meat slaughtered in their neighbor’s backyard.

*“All individuals have a natural, inherent, and unalienable right to food, including the right to save and exchange seeds and the right to grow, raise, harvest, produce, and consume the food of their own choosing for their own nourishment, sustenance, bodily health, and well-being, as long as an individual does not commit trespassing, theft, poaching, or other abuses of private property rights, public lands, or natural resources in the harvesting, production, or acquisition of food,”* the amendment to Maine’s constitution declares.

Maine has had some of the most liberated cottage food laws in the country since 2017, allowing the sale of all foods prepared in licensed home kitchens, with no limit on the type of food or amount you can sell.

Other states’ allow various foods to be prepared and sold from home kitchens, but with restrictions such as “no meat, seafood or dairy” or “direct consumer sales only.” And many states put a cap on the dollar amount you can make per year – \$3000 in Virginia, for example.

In Maine, you’re allowed sell your homemade goods in the grocery store and are free to make as much money as you possibly can.

In recent years, small time farmers have been threatened with by huge agricultural companies for saving and sharing seeds.

Maine’s “Right to Food” constitutional amendment ensures seed savers, gardeners and farmers can keep sharing and selling whatever food they want. ● 5

***Ecology Action and John Jeavons Present:  
A Four Saturdays” Zoom Workshop  
On Backyard Biointensive Gardening***



***Oct. 29, Nov. 5, 12 & 19, 2022***

***Learn to grow healthy food and fertile soil from  
the author of “How to Grow More Vegetables”  
[growbiointensive.org/workshop.html](http://growbiointensive.org/workshop.html)***

## Soil Science Spotlight: Estimated Nitrogen Release (ENR)

By John Beeby ([growyoursoil.org](http://growyoursoil.org))  
Ecology Action Soil Fertility Advisor

*Understanding soil testing and the correct use of organic soil amendments is an important part of GB. John Beeby and Ecology Action created the “Soil Science Spotlight” to introduce the topic to the GB community. The whole series, with frequent additions, is online at [growbiointensive.org](http://growbiointensive.org) in the “Protocols” section.*

**D**o you need to add nitrogen to your soil? When organic matter is consumed by soil microbes, the nutrients can be released into the soil or incorporated into the bodies of the microbes. Organic matter contains nitrogen, and the amount of nitrogen available to your crops is based on the amount of organic matter in your soil and the rate at which that organic matter is decomposing, as well as the amount of nitrogen added as fertilizer. If nitrogen is released into the soil (either by microbes or the addition of fertilizer), it becomes available to plants or other microbes. If it is not taken up by either, it may combine chemically with other nutrients in the soil, or it may leave the soil through leaching or as a gas. Microbial activity controls the availability of nitrogen released from organic matter to plants. If there is a lot of organic matter in the soil and a lot of active microbes, nitrogen availability is generally high. If the soil is low in organic matter or low in microbial activity, nitrogen availability is low.

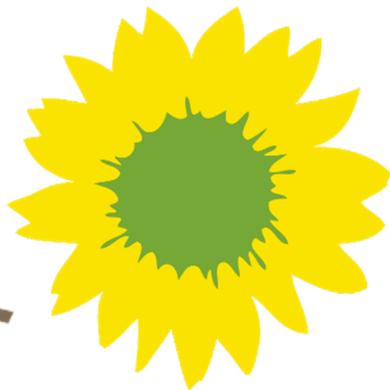
While soil organic matter is the main factor determining microbial activity and nitrogen availability,

soil temperature, moisture and texture also play a role. If the soil is cold and/or dry, microbial activity will be low and nitrogen availability will be low, even if a soil’s organic matter level is high. Soil texture also plays a role, though a smaller one than organic matter, temperature, and moisture. A clayey soil tends to hold and protect organic matter from microbial decomposition more than a sandy soil, so relatively less nitrogen will be available in a clayey soil compared to a sandy soil with the same conditions.

Organic matter, temperature, moisture and texture all determine the amount of nitrogen available to a crop but estimating the amount available is not precise. ENR or Estimated Nitrogen Released is described in pounds per acre, or kilograms per hectare, and is determined in various ways by soil testing laboratories based on methods in published literature as well as their own trials and experience. At Grow Your Soil, we have tried to unify these methods by assigning factors to organic matter, temperature, moisture, and texture to generate more accurate estimates. Typically, there will be enough nitrogen (greater than 150 lbs. per acre) available for any crop during the growing season if the soil’s organic matter is 6% or greater. If a soil’s organic matter percentage is slightly lower than 6, there is still likely to be adequate nitrogen available if the soil is sandy. For soils that do not currently provide enough nitrogen for crops, an organic nitrogen fertilizer can be applied. As an example, a soil with an organic matter level of 3%, in a relatively warm and moist environment, might require 10 to 12 lbs. of alfalfa meal per 100 square feet to provide enough nitrogen for to grow crops.

Selecting the correct nitrogen fertilizer depends

Grow  
YOUR  
SOIL



## Soil Science Spotlight

*If we understand a soil,  
we can improve it*

again on the temperature, moisture, and texture of the soil, as well as the needs of the crop. Alfalfa meal is a commonly used organic nitrogen fertilizer for gardeners and small growers due to its availability. Since microbes are required to break down the alfalfa meal to release the nitrogen, if the soil is cold or dry, lower than expected amounts of nitrogen are released, causing the grower to either apply more alfalfa meal or select a nitrogen fertilizer that is less dependent on microbial activity to make its nitrogen available. Blood meal, properly treated urine, and commercially available liquid nitrogen fertilizers that can be applied to irrigation lines are examples of organic fertilizers with more readily available nitrogen. While the advantage of these fertilizers is that they are much less dependent on soil microbial activity, it is also one of their disadvantages. Without a vigorous microbial interface, the nitrogen in these fertilizers can leave the soil through leaching, particularly in sandy soils, without being taken up by either plants or microbes, so the timing and the rate of application become much more critical and more difficult to optimize. The second disadvantage is that except for urine, all these fertilizers can be more costly either directly or through environment costs. There are a wide range of organic nitrogen fertilizers that release their nitrogen at varying rates. Feather meal, cotton seed meal, fish meal, soybean meal, as well as a variety of composted manures are all examples of organic nitrogen fertilizers. While functional at providing nitrogen to a deficient soil, it is important to remember that each of these fertilizers requires the removal of nutrients from the soils that grew them or the feed that grew the animals, as well as energy for processing and transportation.

A soil that has been neglected or poorly managed often needs specific organic fertilizers to begin producing, determined by testing and a recommendation service like Grow Your Soil. However, a good goal is to try to increase your soil fertility level to the point where it can produce enough organic matter that can be composted and returned to the soil to maintain or increase its organic matter level and microbial activity. In addition, if we can return as many harvested nutrients to the soil as possible, we can minimize the amount of supplemental, non-sustainable organic fertilizers needed and maintain soil fertility in as close to a closed-loop, sustainable system as possible. ●

## A "New" Kenyan NPO: Good Nutrition for Everyone

By Boaz Odour

*2008 EA intern Boaz Odour continues his extraordinary work teaching GB to those in need, with financial assistance from Ecology Action. Due to legal challenges, he and his family have moved to a new site and renamed their project. Boaz writes:*



**G**ood Nutrition For Everyone (GNFE) is a new NPO based in Trans Nzoia County, Kenya. GNFE's mission is to improve the living standards of vulnerable individuals and communities, including the elderly, orphans, prisoners, and pastors. We believe food security, good nutrition, disease prevention and income creation help create healthy churches and communities, and that we can address the needs of the vulnerable through training programs in organic biointensive farming and natural medicine.

The needs of the elderly and orphans are closely intertwined, as both need to be fed, clothed, and sheltered, and the orphans taken to school; both (especially elders abandoned or without children) are often marginalized, interacting with few people, and becoming discouraged by their treatment. Both need to be soaked with words of hope and training to grow a better future.

Many prisoners in Kenya are jailed due to lack of legal representation and corruption in the system; many are marginalized when they return home, as people fear and mistrust them. A solution is to train them in prison to grow healthy food and income, and also to educate their family and friends about the importance of embracing and assisting their loved ones when they return home. If prisoners return to their communities with skills they learn through our training programs, and find their loved ones have also been educated, it will create a "win-win" situation for everyone.

Africa is blessed with weather that allows us to grow food year-round, but also favors disease-causing pathogens. This is where pastors can become vulnerable as they pray for healing of diseases that are more related to poor diet than other causes. Therefore, we need to train pastors to recognize the benefits of organic farming and natural medicine in preventing and healing illness. Good Nutrition for Everyone is focused on providing the training programs that will help all of these people grow a better life, and a better world. ●

# Recipe: Strawberry Oatmeal

By Shannon Joyner, Garden Companion Editor

Spring is here, the days are getting longer, and everything seems to be in bloom at once. It's so beautiful! But while the sun is bright and warm in the afternoon (80°F in the shade and it's not even April yet), mornings are a chilly reminder that we're not really that far from winter yet (34°F this morning brr!). So while dinner is edging away from hearty soups and stews and toward the salads and stir-fries of summer, I still need to start the day with something cozy and comforting, and with the world the way it is right now, it doesn't hurt if it feels a little like a treat.

Oatmeal is a healthy, filling, nutritious, and warming choice. It's got protein and carbs, and it's a wholegrain powerhouse of vitamins and minerals including silicon, manganese, zinc, calcium, phosphorus, and vitamins A, B1, B2, E, and heart-healthy soluble fiber. It's got unique antioxidants called *avenanthramides* which inhibit inflammation, help protect your arteries, and may even help fight cancer. But let's be honest: oatmeal can be a little dull on its own. But...what if it wasn't? What if it were glamorous and deliciously creamy-sweet-tart-fragrant and an utter delight to eat? What if oatmeal for breakfast was good for you but felt like a guilty pleasure?

What if, indeed.

## Ingredients (per serving)

- 1/2 cup quick cooking oats**
- 1/2 cup milk of whatever type you like** (or you can use all water, but it won't be as creamy)
- Scant 1 cup water**
- A pinch of salt**
  
- 1 cup frozen strawberries (or fresh)**
- 2 T maple syrup**
- A squeeze of fresh lemon juice**
- A dash of vanilla or almond extract**
  
- 1 T chopped nuts (optional)**
- A pat of butter or coconut oil**

Place the oats, milk water, and salt in a saucepan and cook, stirring often, over medium heat until thickened to your liking.

Place strawberries, maple syrup, and lemon juice in a separate saucepan, cover and cook over medium heat until the strawberries are mostly thawed (or softened, if using fresh berries). Using a potato masher or a fork, mash the strawberries to form a chunky sauce. Continue to cook and stir until somewhat thickened, but still quite juicy. Remove from heat and stir in vanilla.

Transfer the oatmeal to a serving bowl (a clear-sided one gives a dramatic presentation) and gently spoon the strawberry sauce over the top so that it completely covers the oatmeal to the edge of the bowl. Top with a pat of butter/coconut oil and chopped nuts, and enjoy. ●



# Herbal Spotlight: Oats

By Shannon Joyner, Garden Companion Editor



**T**he humble oat, *Avena sativa*, wasn't always the popular plant it is today. Thought to have first been cultivated in the Caspian and Caucasian plains, oats made their way to Europe during prehistoric times, and was the last major cereal grain to be domesticated there. The Romans, who preferred barley, thought of oats as horse food, and mocked the Germanic tribes as "oat-eating barbarians." But then the oat-eaters overthrew Rome, so...

Anyway, today we mostly look at the calorie-dense common oat and see a familiar breakfast food or a fodder crop for livestock. But *Avena* has so much more to offer us as a medicinal plant! The unripe grain, called "milky oats" (oat tops harvested at the stage between flowering and the hardening of the seed, when the still-soft grains release a white, milky sap when squeezed) and the green stem of the plant called "oatstraw" (harvested at the same time as the milky oats) are known to have many beneficial qualities, one of which seems particularly useful right now: as a potent yet gentle nerve tonic to help your system cope with stress.

According to [theherbalacademy.com](http://theherbalacademy.com) "Oats are considered one of the best remedies for "feeding" the nervous system, particularly in times of stress and in the case of nervous system weakness or exhaustion associated with depression (Hoffman, 2003), overwork, or emotional trauma

(Rose, 2010). Symptoms may include irritability, chronic fatigue, inability to focus, loss of libido and heart palpitations (Rose, 2010). Oatstraw infusion helps mellow the mood, ease anxiety, combat the effects of daily stress, and resolve sleeplessness...supporting sexual health and increasing libido by nourishing the endocrine system and regulating hormones (Edwards, 2000), moistening glands, and restoring nerve health (Berger, 1998). ... By strengthening and soothing nerves, balancing endocrine function, and nourishing the immune system, oatstraw fosters physical, mental, and emotional strength and resilience (Berger, 1998). As the tall oat plant which sways and dances gracefully with the changing winds yet remains firmly rooted and grounded in the Earth, so too will those who take oat's medicine."

And [oldwaysherbal.com](http://oldwaysherbal.com) says "Oat ... is beloved as a restoring, nutritive nervine tonic (medicine whose effects build slowly over time). In women's health we cherish oat for its properties as a mineral rejuvenator and protector against adrenal exhaustion—goodbye postpartum depression! Hello restful sleep, coping skills, and an end to feeling stretched too thin, exhausted, and sapped of vitality. ... it has a grounding, moistening effect for folks who feel burnt out, dried up, and frazzled ... the minerals your body needs for your heart, muscles, bones, and nerve transmission to work well; kidney and liver function; and it bestows a feeling of general well-being to those of us lucky enough to bask in its welcoming green glow. As is common, the tea is a gentler, more long-term builder known for its mineral-related actions, while the tincture is stronger and more known for antidepressant and nervine actions."

You can buy dried oatstraw, milky oats and even prepared tinctures from reputable herb suppliers, but you can also grow your own! Oat is a short-season, cool weather crop, so you may still have time to plant it this spring; if not, you can also plant it in the fall. The article online at [oldwaysherbal.com/2014/04/22/milky-oats-tincture-whats-the-secret/](http://oldwaysherbal.com/2014/04/22/milky-oats-tincture-whats-the-secret/) is a good guide to planting, growing, and harvesting milky oats, and has instructions for making a tincture with them, as well. ●

*Note: The content in this article is meant to inform, not to diagnose or treat any ailment. Always use common sense, and consult with your healthcare provider before attempting to treat yourself or others.*

# Dahlia Dividing Observations

By Suraya David-Sadira  
Farmer Teacher-Trainer, The Jeavons Center

*In 2021, we established an experimental 10-Bed Unit (10BU) at TJC complementing the ongoing research on this topic at VGFP and other 10-BU locations globally. The diet design for this experimental bed included dahlias as a versatile carbon/calorie/income crop. [cultivariable.com/instructions/root-crops/how-to-grow-edible-dahlias/](http://cultivariable.com/instructions/root-crops/how-to-grow-edible-dahlias/) is a good intro do edible dahlias.*

Yesterday in the garden I mostly divided Dahlia tubers. They are such incredible and beautiful plants and the dividing process is so particular that it brought me some sense of anxiety to just start hacking them up. Each year when you plant a dahlia tuber it will multiply, producing a ball of many often interwoven tubers. In some locations where it only lightly freezes, dahlias can be left in the ground over winter. However in places that experience a hard freeze it is best to take the tubers out of the ground.

Once you take the tubers out of the ground you then can decide whether you want to divide them or not. If you decide to leave them undivided, then you will likely have strong healthy plants with even larger tuber balls next year. However, if you do decide to divide the tubers, you can multiply the amount of plants you have, and harvest some tubers for eating; but you do run the risk of butchering all your tubers. The dividing process is very delicate and complex so it is important to have good tools and be vigilant in your method.

Dahlia roots consist of the main body of the tuber, then often have a very skinny neck, and then connect to the main stem. Where the neck connects to the main stem there is a little eye that looks similar to a potato eye. In order for each tuber to grow a new plant, it must have all its parts intact: the main body, the neck, and the eye. It is easiest spot the eye if you divide the tubers the same day they are dug from the ground. The longer the tubers are out of the ground the harder it becomes to spot the eyes. **NOT ALL TUBERS YOU DIVIDE WILL END UP HAVING EYES.** It is totally natural that some dahlia tubers will break off at the neck or not have an eye. Only about 50% of your tuber will produce viable plants in the spring. Whatever breaks or you don't need, you can set aside to eat.

You could also choose to wait until the spring to divide the tubers once they have already sprouted, but this method also comes with its benefits and challenges. It will likely be easier to see the tuber eyes once they have sprouted, however, it may be more challenging to ac-

tually split the tubers. By waiting to split the tubers I suspect you will also get fewer splits and could alter the amount you harvest for food.

## Steps to divide Tubers

If you are planing to dig up dahlia tubers do it on the week of the first frost. Make sure your Dahlias are labeled before they stop producing flowers.

1. Dig up bulbs by inserting a garden fork one foot from where you think the center of the dahlia tuber ball is. The tuber balls multiply over the growing season and are planted about a foot deep, so the tuber balls can be a food in diameter and grow deep into the ground so start prying them up from afar to avoid puncturing them. Since they grow deep in the ground you may want to dig a little trench around the ball so that you can pry from deeper with your fork. Start wide and work your way in until the tuber ball emerges.
2. Place tubers aside with their labels.
3. It is easiest to divide tubers within an hour of pulling them out of the ground so it may be good to work through the bed in sections. A longer you wait the harder it becomes to see the eye of the dahlia.
4. After you have a few tuber balls out of the ground, use a hose to wash away all the dirt you so you can see all the parts of the tuber.
5. Dahlia tuber balls can be intricate and tangled, so it is important to be careful and have good tools. Each tuber needs to have a tuber body, a neck, and an eye to be viable. Carefully separate the tubers using garden clippers. Some of the tubers will break off at the neck, and some tubers wont have a viable eye. It is a complicated task you kind of just have to learn by doing.
6. Lastly weigh all the tubers and record all the data. Store the tubers with a viable eye and enjoy eating the rest. ●



# TJC Hedgerow Project: A Living Fence Booklet

By David Troxell



*Years ago, we received a copy of the book Hedgerow as a gift from a friend. The lovely writing and beautiful illustrations struck a chord deep within us and inspired us to think about creating hedgerows in our own gardens. Using the book as an inspiration, EA Communications Director David Troxell used his extensive experience in landscape and garden design to plan our hedge, which we hope to establish this fall and winter. The result of David's work is in preparation for publication this year as a booklet in our Self-Teaching Mini-Series. This is an excerpt for you to enjoy!*

## Called to Something Different

Something that has bothered us for a long time is the obligatory fence around the garden. The two concepts are completely opposed: a garden is a lush oasis, a gift for all who enter it, a sustaining landscape; a fence is a boundary, a limitation, an oppressing force. The problem, of course, is that as gardeners we hope to keep most of our hard-labored harvest to feed the soil and ourselves rather than losing it to wildlife. There is a real and valuable purpose served by a garden fence, in that the time and care put into the garden are all deliberate, performed by a specific person or group of persons, and therefore it is unfair if, in one night of moondrunken revelry, the entire crop is lost to marauding llamas.

But is a fence “fair” to the llamas? To the deer?

We are, after all, farming land that is not our own. For generations those deer have been grazing our hill. Forty years ago, we showed up, declared the place a garden, and threw up a fence.

Whether or not a fence is fair to wandering wildlife, a wall of wire surrounding an abundant garden is an unappealing contrast.

A garden is a productive and organized affair, but should always be aesthetically pleasing. We have seen many beautiful fences. Natural materials like wood and bamboo are beautiful options for a fence, but are expensive choices. On the other hand, posts with netting or wire are less expensive, and once installed last a very long time. There are still barbed wire fences in the western United States that have lasted for over a century. Of course, in an area with high humidity or salt, this would be a much shorter-lived material.

An excellent solution to the combined needs of beauty and functionality is a hedgerow, a living fence. If designed properly, we suppose the hedge could be aesthetically pleasing, blend in with the garden and surrounding space, keep deer, llamas, and neighbors away, and be productive at the same time: we could provide food for foraging animals on the outside of the hedge, and food for the gardeners on the inside, snacking while they work. Rather than requiring the importation of posts from somewhere else, this “fence” could actually provide coppicing wood over time.

The only negative aspect of a hedgerow is the amount of space it requires: the width of most fences is one to eight inches, while a living hedge fence can be many feet wide, depending on how thick and impenetrable you wish the barrier to be, and what material(s) you would like to incorporate for different purposes.

The world-famous British hedgerows, which are hundreds of years old, have over time created their own ecosystems, acting as the last natural places in cultivated farmlands. Oftentimes they serve as wildlife corridors, allowing larger species to move from one area to another without risking exposure in the plowed fields, and many species of birds and small mammals make permanent homes in hedgerows. These living fences seem to have provided a very “fair” affair indeed, for everyone involved: the landlords had their property boundaries marked and protected, the wildlife still had a space to build nests, forage for food, and live their lives, and even the peasants walking past a hedgerow growing along a common road were free to forage for the berries and fruits growing there as well. ●

## The Lost Book of Herbal Remedies: The Healing Power of Plant Medicine

From GROW THE EARTH ([johnjeavons.org](http://johnjeavons.org))

Progress is a funny thing. Every real advancement in agriculture or medicine that we enjoy today is rooted in the deep knowledge that kept our ancestors alive. But over time, as we “improve” we tend to lose touch with the traditional knowledge and practices that provide the basis for our modern conveniences. For some, there is almost a sense of privileged ignorance in not “having to” know how things came to be, deeming such knowledge “old-fashioned” and unimportant. But I think there’s real value – and enjoyment and empowerment – in getting back to our roots, and understanding how our world really works, and how we can work with it to survive, and to thrive!

My interest in traditional farming methods and knowledge of the land has naturally led into an interest in and a desire to learn to recognize and use the medicinal plants growing in my environment, as our ancestors did. There are many books on the subject, but

one that stands out for me is *The Lost Book of Herbal Remedies – The healing Power of Plant Medicine*. While not an exhaustive guide, it’s an excellent introduction to “...181 healing plants, lichens, and mushrooms of North America (2-4 pictures/plant for easy identification).”

Author Dr. Nicole Apelian is an herbalist, survival skills instructor, anthropologist, and research biologist with degrees from McGill, University of Oregon, and Prescott College. She has a deep knowledge of plants and experiences making her own herbal remedies. She spent years living in nature with the San Bushmen of the Kalahari Desert, one of the last indigenous peoples who still live as hunter-gatherers and

“...survived solo in the remote wilderness for 57 days...with little more than her hunting knife and the field foods and medicines she found there.” Co-author Claude Davis is a “Wild West history expert.... His focus is to save the survival skills of our grandparents.”

Apelian and Davis do an excellent job of providing a guide to the world of wild medicinal plants of North America, how to identify them, and how to use them to create 550 natural remedies (traditional compounds as well as newer ones from Dr. Apelian’s practice) to treat a variety of ailments from cuts and bruises to multiple sclerosis (which Apelian was diagnosed with in 2000 and overcame: “*Through changes in her lifestyle, recognizing profound mind-body linkages, and making and using her own remedies, Nicole went from bedridden to being fully alive and from surviving to thriving. She believes that there are many more people suffering who need to find their own remedy.*”)

Topics, approaching 200 include:

- How to Harvest the Healing Power from Plants
- Encapsulating Powdered Herbs
- Herbal Water Infusions
- Oil Infusions
- Salve Making
- Double Extractions
- Distillation
- Medicinal Syrups
- Poultices
- How I Manage Multiple Sclerosis
- A Wide Range of Backyard Plants
- A Wide Range of Forest, Scrubland and Woodlands Plants
- A Wide Range of Tree and Shrub Plants
- A Wide Range of Mushroom and Lichens
- Household Remedies,
- Plus a Detailed Appendix

In my opinion *The Lost Book of Herbal Remedies is Must Read*. It is comprehensive, detailed, and well-done. I thoroughly enjoyed it and did not want to put it down – though it did take some time to complete and absorb it all! If you are interested in learning to use the helpful plants in your own backyard to create better health and become more in tune with your body and your environment, then give this a read. You’ll enjoy it from the very beginning! ●

# The Future Heirlooms Seedbank is Open!

From Kootenay Society For Sustainable Living

*James Christie-Fougere and Sharon Coombs were 2016 EA interns, and are co-directors of The Kootenay Society for Sustainable Living and Future Heirlooms Mini-Farm in British Columbia, Canada. They are focused on GROW BIOINTENSIVE agricultural methods, earthen building practices, food storing, and beekeeping.*

*"Seed is the source of life and the first link in the food chain." -Vandana Shiva*

**H**ey all, we wanted to share that the Future Heirlooms Seed Bank is officially open!!! We're online at [growsustainability.org/seed-bank](http://growsustainability.org/seed-bank) Flat rate shipping Canada-wide is \$5, and \$10 for the USA. Everywhere else in the world: \$15. We're prioritizing the preservation and proliferation of rare varieties over income generation; therefore, the Future Heirlooms Seed Bank operates by donation. People who are in the East Kootenay region can opt for local pickup during checkout. Because we are a small education/research based non-profit with low inventory, we ask you to please limit seed orders to 5 packets per household per year. There is no minimum donation required, so simply please donate what you can when you can to help us keep the Future Heirlooms Seed Bank available to everyone!

All of the seeds found in the Future Heirlooms Seed Bank were grown with love, by hand, at our Grow Biointensive Research, Education and Demonstration Mini-Farm. All seeds are open-pollinated, grown organically, transplanted, and harvested by hand, with care. We've focused our research on rare and endangered varieties that are highly adaptable in order to facilitate acclimatization to micro-climates, and preserve these valuable and increasingly endangered genetics. As a result, you'll find many Heirloom, Landrace and Heritage varieties!

Future Heirlooms is located near Kimberley British Columbia, nestled in the Columbia valley between the Purcell and Canadian Rocky Mountain ranges. Our gardens reach a 4,000 foot elevation and are situated just under the 50th parallel. We have a cold, short growing season in a semi-arid overall climate in the region. Our micro-climate is particularly cold,

with roughly a 3-month main growing season, and 2 very frosty months on either side. We have no frost-free growing months even in summer, with a typical summer day reaching 30°C (86°F) during the day and 5°C (41°F) overnight. Our soil is a sandy loam with moderately low soil organic matter and an alkaline pH of 8-8.5.

Through rigorous variety trials and selective seed saving, we've begun to acclimatize these varieties to our unique micro-climate; selecting the strongest, fastest, highest yielding plants which also acclimatizes them to our unique micro-climate conditions. As a result, all the seeds we are sharing with you are very cold tolerant, frost tolerant, adapted to extreme temperature shifts between day/night, and overall acclimatized to our dry climate, dry sandy soil, and high pH. If you have a different micro-climate, fear not! These open-pollinated seeds are capable of acclimatizing to your micro-climate as well! Simply save your own seed, and you'll quickly see your own yields increase as your plants grow and adapt to your growing conditions.

Seed grow out participation and seed donation forms coming soon! If you have any questions about a particular variety, we're happy to share more information and data.

Happy growing! ●



# How to Grow Seedlings Indoors

From the Bountiful Gardens Archive

**T**omatoes, peppers, eggplant, and onions need to be started at least 2 months before you want to put them outside—March is good in most of the US. Melons, cucumbers, squashes, basil, okra, and sunflowers (as well as chia and quinoa in some places) can be started a month before planting out. Beans and corn should be sown direct in the garden or about 2 weeks before putting outside. Germinate seeds at 65 to 75 degrees F. Tomatoes, peppers, melons, eggplant, and basil will germinate best with additional heat, such as the special plant heat mats you can get at the garden store. The top of a refrigerator, gas stove with a pilot light, or any electric appliance that is on for long period will often add just enough extra. You don't need anything above room temperature once leaves appear. Make a soil mix from garden soil, sand, and compost in roughly equal parts (or if you don't have the materials to make your own, buy a high-quality one from a reputable garden supply. Price is a good indicator of quality in potting soil.) Soil should be moist but not wet. We recommend using a fungal inoculant in your soil mix to prevent damping off, help the seedlings grow faster, and extend the roots' ability to find nutrients and water.

A good habit is to sow only part of your seed at first, saving the rest to plant a week or two later. That way, if the seeds come to harm in some way, you still have some. And when harvest time comes, you won't have all your produce at once, but can pick over a long period. This is referred to in books and catalogs as “succession-sowing”

Garden crops need much brighter light than most houseplants. A sunny window will work, if all the seedlings can get light—you may have to turn the flat often. If the window “almost works” but is not quite enough, consider hanging a light just over the plants. A compact florescent (larger size) in a cheap “droplight” could be just the boost they need. Many gardeners will need to use mostly artificial light. A florescent “shop light” or “grow light” fixture is not very expensive, uses little power, and works well as long as it is close to the plants—light loses strength quickly with distance. Hang your light on adjustable chain or cord so that it can start 4-6" from the soil, and raise it as the plants grow (or start by putting the plants on blocks and lower them.) Plants that are tall and thin, with lots of stem between leaves, need more light. If a plant gets bleached leaves, the light is too close.

Growth should be continuous—if it slows, feed with compost tea or other mild liquid fertilizer. Check to see that roots have not filled the pot. Once seedlings are as tall as the pot is deep and have several pairs of leaves, they should be transplanted to a larger container or into the garden.

If seedlings appear withered at soil level and fall over, they've been attacked by fungi and will not recover. This is called damping off. Here's how to prevent it:

- Use a loose soil mix that drains well and doesn't compact.
- Use Mycogrow or other micorrhizal inoculant to prevent disease (the good fungi fight the bad fungi)
- Maintain good air circulation
- Plant seeds in a hexagonal pattern so they are not crowded—use chicken wire as a guide for spacing
- Keep temperature around 65 degrees F
- Avoid overwatering—VERY IMPORTANT!

For about a week before transplanting to the garden the seedlings need to be “hardened off.” Set them outside an hour or two at mid-day at first, gradually lengthening into the cooler morning and evening hours. Make sure they don't dry out and protect them from wind and critters. Or put them in a cold frame and open the lid longer each day.

For an easy way to harden off seedlings and get a jump on the season, you can also use glass or plastic jugs with the bottom cut out placed over the plant. These are called cloches. (You can also make little plastic tents over them). Much greater protection from frost and cold is attained by using water to store the day's heat and use it to warm the plant at night. You can use plastic bottles of water to surround your seedlings, or put bigger containers of water inside your coldframe, hoophouse, row cover, or other enclosure. It is quite amazing how much more growth plants can make with water around them to store the day's heat and radiate it at night. ●



## Getting Started: Choosing the Right Tools

From Victory Gardens for Peace

One important influence on the GROW BIO-INTENSIVE® Method is the French-Intensive Technique which was developed in the 1500s in France and reached its peak in Paris in the mid-1800s. This technique is recognized as being one of the most productive methods of agriculture. Today, we use many of the same tools and techniques which were employed by French-Intensive Market Gardeners.

Invest in quality tools, keep them clean, use them correctly and they will last a lifetime. D-handled tools are ergonomic and easier to use. A flat spade enables you to double-dig more effectively than a pointed shovel. A spading fork with a good shoulder helps you stay on the tool without slipping off when forking a garden bed. Stainless steel tools slide through the soil easier than forged steel but are not as strong and are typically more expensive.

It is important that the handles are made of a durable quality hardwood such as ash or hickory. Plastic or fiberglass handles are lighter weight but do not have the same feel and flex as a natural wooden handle. A good bow rake has a long wooden handle and a metal rake-head with slight flex. This tool is used to level beds after they have been dug and also cultivate soil or chop in amendments. A 3-tine cultivator is another useful tool to have to break up soil clods.

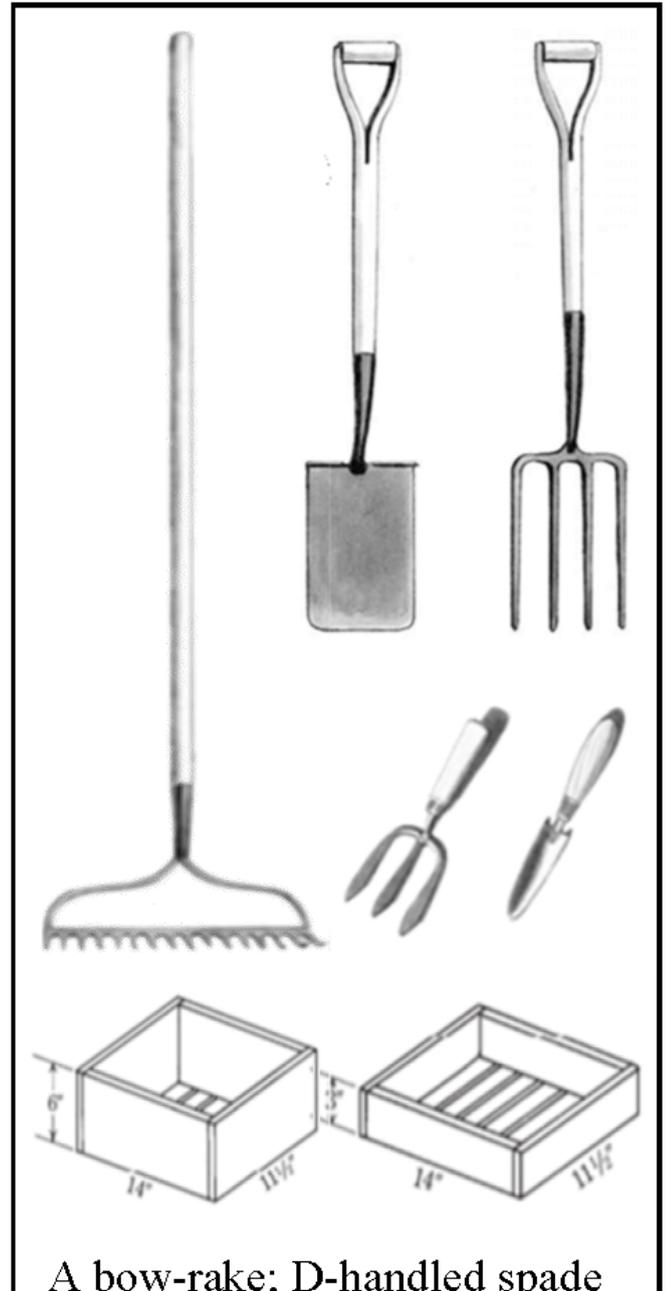
A digging board is important and enables you to distribute your weight across the bed and minimize compaction. A 1/2-5/8" thick plywood board cut 2-3' long by 3-5' wide works well. You want to be able to sit on it, with your tools by your side, and also be able to maneuver comfortably as you dig and rake the bed. GB advocates permanent paths and beds to help improve soil structure over time.

If you do not have a wheelbarrow, a few 5-gallon buckets are all you need. You can run a small section of an old garden hose over the bucket-handle for comfort. A good hand-fork is useful for transplanting. Be sure to choose a hand-fork which has a nice bend in the neck. Transplanting trowels come in various shapes and sizes. One that is about 2-4" wide and 6-8" long is fine.

It is important that seedling flats have at least 3" of root-zone depth. We like to build ours of recycled redwood or cedar; they are rot-resistant and hold up well for years. The flats shown are 3" and 6" deep, the deeper flats for

pricked out transplants. (Instructions on how to build your own seedling flats are at [www.growbiointensive.org/Enewsletter/Spring2017/SeedlingFlat.html](http://www.growbiointensive.org/Enewsletter/Spring2017/SeedlingFlat.html).)

Keep your tools clean and use them properly and they will last a life-time! Information on these tools and more can be found in *How to Grow More Vegetables* 9th ed., by John Jeavons. You can see these tools in action at [www.growbiointensive.org](http://www.growbiointensive.org). •



A bow-rake; D-handled spade and fork; hand-fork and the transplanting trowel; and wooden flats.

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## ECOLOGY ACTION EVENTS: 2022

Dear GROW BIOINTENSIVE Family,

In response to COVID-19, our schedule of public events  
is as follows, subject to change, as the situation progresses.

The *onsite* Fall 3-Day Workshop is canceled, but an *online*  
Zoom-based version will take place over four consecutive  
Saturdays: Oct. 29, Nov. 5, 12 & 19, 2022. Register at:  
[growbiointensive.org/workshop.html](http://growbiointensive.org/workshop.html)

Our 2022 schedule of events:  
[growbiointensive.org/events\\_main.html](http://growbiointensive.org/events_main.html)  
or call 707-459-0150

Wishing everyone good health and good gardening,  
Ecology Action

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