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From the Editor

Dear Reader,

My mother often described the less desirable actions of her children by saying we were “going to hell in a hand basket.” Sometimes I wonder what such a hand basket would have looked like. I imagine it had plenty of room for all the unsavory behaviors we as humans seem to tote around with us.

Some of these behaviors and their outcomes have been in the news recently. As climate change became a topic of conversation during the World Economic Forum at Davos, we learned that drinking water in the U.S appears to be more widely polluted than realized with what is known as “forever” chemicals, items like the constituents of Teflon featured in the movie, *Dark Waters*, and Scotchguard, a product of the 3M company.

Also, a recent Anthropopper (Jeremy Smith) blog asked the question, “Is farming finished,” identifying the blame layered on cows for diminished ecosystems, then going on to describe the enthusiasm on both sides of the political aisle for laboratory created foods, be they bacteria cultivated to taste like meat or manufactured to behave like flour. He notes that “conventional medicine recognizes only the physical aspect of food, which mainly amounts to counting calories,” rather than its powerful influence on the subtle body (anthropopper. wordpress.com/2020/01/25/is-farming-finished/).

Applied Biodynamics

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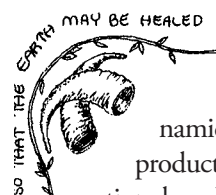
Although this issue does not report directly on these topics, it does note them as well as other events in its “Did You Know” section. Mike Biltonen also reports on water, one of the major topics from the 2019 Biodynamic Conference in Lake George, New York. In addition, this issue continues to recognize the power of the biodynamic preparation plants to create positive change, as noted in Abigail Porter’s article about the properties of dandelion and stinging nettle for our own healing. Because good, healthy food offers hope for the future, we also are initiating a new section, titled “In Transition,” covering farmers making the journey toward biodynamic farming and gardening either in small or large ways. Finally, research from Viva La Vita in Paonia, Colorado, shows people taking Steiner’s direction to new levels.

For at least the past 500 years, since the beginning of Steiner’s identified Fifth Atlantean Epoch, the water and soil that give us life have been mostly misused and disrespected. But if recorded history teaches anything, it is that nothing remains the same for long. Fortunately, the preps offer each of us who use them an opportunity to go deeply into understandings and practices that bring heaven to earth as surely as stirring the preps do the same. In this place of creation, we may come to see that nothing is “forever,” rather that it all is evolving toward greater awareness, no matter how misguided our collective hand baskets may seem at the time.

It is at such junctures when the assistance of spiritual forces is most strongly required, to slow us down and to lead us toward ever greater conscious awareness.

—Mary Maruca

Front cover: Water, the living organism, invites the cosmos to energize the preps for the healing of the Earth.



Mission

The mission of the Josephine Porter Institute for Applied Biodynamics, Inc. is to heal the earth through production of quality biodynamic preparations based on the spiritual scientific discoveries of Rudolf Steiner and to advance education and research in biodynamic agriculture.

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Water Biodynamically Stirred, Cosmically Imbued

Mike Biltonen

“Water, water everywhere but not a drop to drink,” or so the saying goes. This is becoming truer every day. No matter where you live on this planet, fresh water is in imminent danger of being poisoned, polluted, or politicized out of existence. In the United States, we have a long history of abusing a once abundant supply. Indeed, we have abused it to the point that we likely face the disappearance of wild, fresh water in our lifetimes, unless we act now.

A fresh supply of healthy water is not just a biodynamic issue, it is a life-on-Earth issue. Globally, the issue could not be more dire. One of the more damning statements came from the CEO of Nestle who recently stated that water is not a right, it is a privilege. His words clearly **indict** that, from his perspective, the single, most important element supporting our life on Earth should not be available to everyone equally. So where does this leave us as practitioners of biodynamic agriculture?

At the 2019 Biodynamic Association conference this past November, Jennifer Greene and Laura Seeman conducted a workshop titled “Knowing Water, Knowing Ourselves: A Dynamic Path Towards Healing Ourselves.” During the

workshop, they brought to life all that water provides not just to our daily, physical lives but to our spiritual lives as well: “How we know water determines what we see of water and, therefore, how we interact with it and, ultimately, how we care and manage it.”¹ Apart from the bountiful workshop discussions about the various aspects of water and the lessons we learn from our relationship with it, the workshop message particularly struck home during this time of renewed attacks on the environment, indigenous cultures, and life itself.

As awareness of the need for fresh-water resources has grown, some groups of people have begun to fight for water like it’s the 1970s all over again when high levels of pollution and activism finally led to passage of the Clean Water Act. Nevertheless, today, as long as water flows from our taps or is purchasable in single-use plastic bottles, most Americans consistently fail to recognize how precious this resource really is. Only 1) when a community learns their water is contaminated, 2) community members are priced out of the market, or 3) freshwater just isn’t available any longer, do people begin to wake up. But there is water all around us—so what’s the problem?



Taughannock Creek near the Finger Lakes in New York

For many years, fresh water has been viewed as an infinite resource. As a result, it has not been treated with the respect it deserves. We have dammed, diverted, drained, and polluted our rivers, lakes, ponds, aquifers, and oceans. The fact that the once immense Ogallala aquifer is running out of water after less than a century of pumping it for irrigation should really say it all. But there's more. The mighty Colorado River no longer reaches the Gulf of Mexico because so much water has been diverted for cities and farms along the way. In addition, the aquifers in California and elsewhere have been polluted by excessive fertilizers, pesticides, and fracking waste.

In the 1970s, science recognized acid rain as the major source of pollution in lakes and ponds, killing millions of fish, aquatic invertebrates, and entire aquatic ecosystems. Acid rain has not gone away. Rather, new issues have been added to the mix. Most recently, heightened awareness around “forever chemicals” like PFOS (Perfluorooctanesulfonic acid), a key ingredient in Scotchguard, and the selling off of fresh water resources to commercial enterprises has kept the plight of fresh water in the public eye.

Forever chemicals like PFOS and PFAS (Per- and polyfluoroalkyl substances, or highly fluorinated chemicals) first caught the public's attention thanks to a *New York Times* article titled “The Lawyer Who Became DuPont's Greatest Nightmare.”² The article described the nightmarish situation in West Virginia at the hands of chemical giant DuPont, grist for Hollywood also in the movie, *Dark Waters*, with Mark Ruffalo in the lead.” In essence, years of unfettered industrial pollution resulted in levels of these chemicals in people's drinking water that caused such serious health problems as cancer. As if this wasn't the greatest crime against humanity, the chemicals themselves don't actually breakdown over time. They are here forever, at least as far as current science has found. Meanwhile, the Trump administration is seeking to further deregulate water standards, and reduce monitoring and regulation of water supplies.

Profits tend to come before people—or other life forms—as the CEO of Nestle implied. Indeed, nothing has really changed in the last forty years since passage in the 1970s of measures to protect water. Water definitely still isn't clean, as witnessed by the crisis of lead contamination in Flint, Michigan, and other municipal areas. If anything, we've gone backwards as environmental protections are rolled back and apathy increases.

But the problems go beyond the things we can identify or measure. The fact is that our global water supplies are changing at a molecular and energetic level; and this is where biodynamics comes in.

What few people know or realize is that water – proper, clean, energetically-balanced, structured water – is a rare resource in the 21st century. Only a few nations have mountain streams supposedly clean enough that you can drink from them directly without fear of illness. Even so, a recent short documentary film (*Holy (un)Holy River*) about the Ganges River in India by Jake Norton and Pete McBride, illustrates how even what we perceive as the cleanest places on Earth are anything but that. As example, the headwaters of the Ganges lie in the Himalayas, far from industrial activity or significant population centers. Yet, the filmmakers found levels of pollutants and heavy metals in the meltwaters of the glaciers that are the source of this most holy river on earth. The pollutants drifted in from thousands of miles away, originating in factories in China and elsewhere in. These pollutants are degrading the water quality of the most holy river running through one of the most populist places on Earth. But there are things we can do.

Before I go there, however, let me explain a bit more about structured water. A water molecule is comprised of two oxygen and one hydrogen atom electrically connected at specific angles. As these individual molecules attach to other molecules multiple times at similar angles, they create a matrix or sheet of water molecules. The angle of the atomic structures creates “structured water,” sometimes called magnetized or hexagonal water. The word refers to water with a structure that's been altered to form a hexagonal cluster. This cluster is believed to be much like water that hasn't been polluted or contaminated by humans—thus similar to water that once was available naturally to all and still exists in a few places on the planet. While the science of structured water is still controversial, the scientific studies conducted by Gerald Mack and discussed his book, *The Fourth Phase of Water*, begin to unravel some of these mysteries and help us to understand we've missed the point about water for a long time.

The molecular nature of structured water allows it to hold more energy and transfer health benefits to people, animals, and plants alike. Researchers and farmers who work with structured water and examine it at its most minute levels realize that water is not only just water—that its significance comes from more than its physical structure.

A large part of water's importance occurs because of the imprints it is able to hold. Its oxygen-hydrogen bonds break easily, allowing water to reform and, in that process, to be imprinted energetically either by abuse or positive energetic intentions. Many people don't realize that a city's apparently clean, but formerly polluted water can retain an imprint of pollutants even after it has been technically cleaned up. Equally, water crashing over rocks where it is



Flowform at Wintergren Farm

remixed with more oxygen and also exposed to all the elements, including the cosmos, can have impurities eliminated and the water matrix restored.

Fortunately, techniques like sensitive crystallization and paper chromatography help us to understand the “purity” and vitality of water. Investigators like Japanese scientist Masaru Emoto who have worked with water crystallization have not only illustrated how patterns can reveal the energetic status of water, they have run comparative studies using a variety of water samples to illustrate what structured water patterns look like. And it is quite amazing. As with the analytical process of paper chromatography, the patterns revealed by crystallization say a lot about the quality of water and our relation to it—metrics now seem so much less revealing to me, even if we could measure these things.

The stirring of water containing biodynamic preparations helps with this revitalization of water. When using the preps, it is important to start with water that is as pure as possible. Chloramine and fluoride treated water should not be used at all since they do not outgas and specific

filters are needed to remove these toxins. Chlorinated or otherwise treated water is not recommended but, if that’s all you have to work with, then it is possible to clean it up before introducing the preps or stirring. The easiest step is to let it sit outside in the sunlight for 24 hours to release some impurities before you proceed. Beyond that, filtering chlorinated or treated water with a ten-stage carbon filter can further physically remove impurities and bring the water closer to what you’re looking for. The last step then would be to actually restructure the water to remove toxic imprints and re-establish the appropriate molecular patterns, if possible, before stirring. Water structuring devices exist and have been further developed by farmers along the biodynamic spectrum. Various flow form devices have been designed to do exactly this.

Of course, if you are drawing from rain, a deep well, or a pure surface water source, say somewhere high in the Rocky Mountains (though even those sources now hold impurities), then nature has already done most of the work for you. The beauty of Steiner’s clairvoyance is that much

of what he taught us came before the most recent destruction of nature and—water—yet he knew what was coming and helped us prepare for it. Essentially, the cosmic energy we help the water become infused with during the stirring process enables the preps to have profound impacts on the land where they are sprayed out.

The basic approach to stirring water—potentizing the preps—is to stir the preps in water for an hour in alternating directions (clockwise and counter-clockwise) before spraying out on the land. Some descriptions, like those from the Josephine Porter Institute (JPI) indicate changing direction every minute. There are variations on this procedure, and you can even buy potentized preps that require less stirring. But the point is that by stirring in the prescribed way you create a vortex that introduces participants' participation and intention into the sprays. This can't be replaced by machine stirring, and so hand stirring remains preferred. The stirring of the water is, in fact, restructuring it to allow cosmic forces to be drawn into the water. And while hand stirring the preps certainly allows the intention of the farmer and cosmic forces to be introduced, something quite profound does happen physically as the water is restructured.

Manfred Klett, author and founder of a biodynamic farming community in Germany, writes how stirring the preps transcends our basic concepts for what's happening during the process and how that relates to the energetic composition of water.

We start to stir the water by building up a vortex. Then we break it down in the other direction. Doing this we are creating a polarity in space and time. The polarity is formed in space by creating center and periphery. In time it is formed between the water in stillness and in motion, forming the vortex." He goes on to elaborate by stating, "Another polarity is created by making a clockwise vortex, and then a anti-clockwise vortex. A further polarity in time is the speed of the water, moving very fast at the center and much slower at the periphery, thus forming gliding layers at different speeds. So we are actively creating polarities in space and time, tensions between two poles out of which something new evolves. This tension is a medium, so to speak, through which an intensification can occur."³

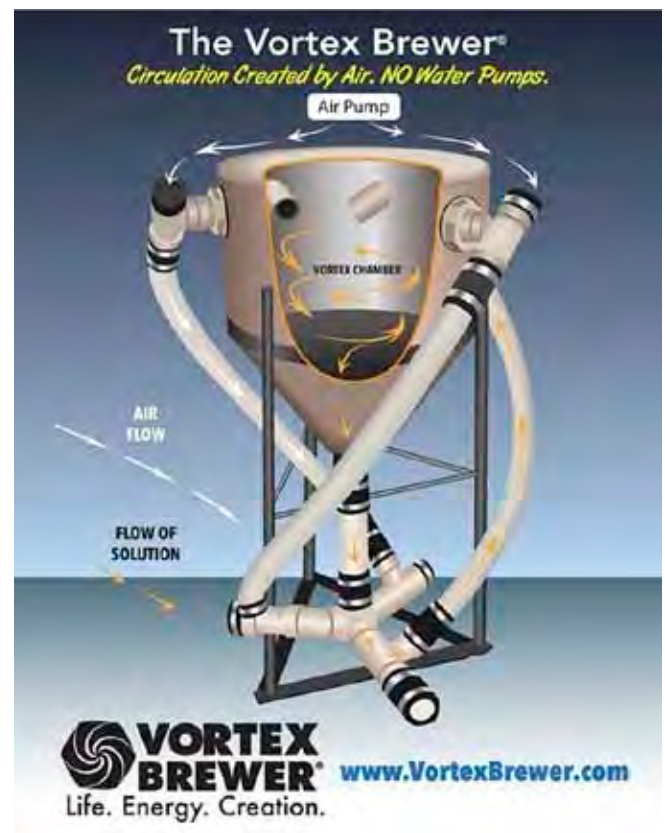
It is this last statement that I find the most illustrative of why Steiner described the stirring as so important to the success of the preps, though Steiner also made it clear that intention was equally as important to the prep mixture before the spraying. What you put in, you get out. The stirring—the creation of the vortex—draws cosmic energy

into the restructured water and, with the intention of the person doing the stirring, the resultant mixture is cosmically ready for spraying.

Over the years, various tools, devices, and machines have been created to assist with stirring. Among the simplest is a flow form where the water containing the preps runs over a form that creates natural swirls and patterns. The intention of this method is to replace hand stirring, while still capturing the cosmos and restructuring the water.

More complicated flow forms have been developed to recirculate the prep solution for a period of time. The flow form series creates more complex swirls and patterns, introducing greater complexity and probably more highly structuring the water. The pinnacle of this idea comes from growers who use handcrafted forms (a waterslide) with gates and valves so that they can change the pattern and rate of flow according to the conditions.

In addition to flow forms, farmers can also consider devices and machines that use a variation on hand stirring to swirl the water around a vessel, rather than a form, in a direction that creates a vortex and that can be reversed to achieve the same end result as hand stirring in a bucket. The Vortex Brewer⁴, Pendragon stirrer⁵, and other products introduce mechanical tools that can stir large quantities of preps while



Vortex Brewer® stirring device

still imparting the benefits that come with restructuring water and introducing cosmic energy into the mixture.

Nevertheless, the immense importance of the energy and structure of water on farms didn't come to me while considering the prep stirring process or while attending the workshop, but rather while working with several Hudson Valley orchards with existing waterways (ponds, creeks, channels) that had become overgrown and so were no longer working either functionally or energetically. To put it simply, they had silted in, allowing for the growth of such plants as phragmites and purple loosestrife. The stagnation had reduced oxygen levels, increased algal growth, and lost the structural diversity of rocks and pebbles on the bottom.

In both cases, the waterways had been constructed to move surface and subsurface water out of the orchard to reduce root diseases and increase overall growth. It was also done to replace subsurface drainage.⁶ The ponds and lakes also provided a surface water source for irrigation and spraying. What the owners didn't realize is that the pure, structured water and its movement across the landscape can rebalance and energize the orchard, increasing the vitality and life-force of the land. Stagnated water does not have the same vitality or life force, if any at all. These rebalancing and energizing management practices allow all the other practices and intention we bring to the preps to fall into place. Without it, they fall short of their potential and leave the farmer thinking the preps don't work.

I think of these circumstances in the same way I think of a wilderness watershed with its rivers, creeks, and tributaries. The way water moves from high to low, and crashes over rocks, trees, and natural debris is critical to removing impurity imprints and restructuring it to hold a higher energy level that positively impacts the land. Biodynamic farming is simply good farming. Everything we do must begin with good foundational farming and stewardship guidance for the land and ourselves.

Even the human body contains its own watershed—arteries to capillaries to veins, all carrying life energizing liquid throughout the human system. As we may remember, as above, so below is the way the ancients once respected the land and their own lives. Perhaps it is time to renew that awareness and deep study of how water impacts our lives and our lands, and extend a human hand to what is regarded by Steiner and others as sacred—the organism of water.

Notes

- 1) Biodynamic Association 2019 Conference Program Booklet, pg. 2
- 2) <https://www.nytimes.com/2016/01/10/magazine/the-lawyer-who-became-duponts-worst-nightmare.html>



Beaver pond

- 3) Klett, Manfred. 2009. *Principles of Biodynamic Spray and Compost Preparations*. Chapter 3. Stirring and Spraying the Preparations. Pg. 33
- 4) <https://vortexbrewer.com/vortex-brewer>
- 5) <https://www.pendragonfabrication.com/specialty-machinery/bio-dynamic-stirring-machines/>
- 6) There are a number of ways to improve subsurface water drainage that include tile drains, French drains, deep ripping, and keyline plowing.

Announcement

During the Agriculture Conference 2020 at the Goetheanum in Dornach (Switzerland), the new international organization “Biodynamic Federation Demeter International” (BFDI) was founded.

Its main goal is to have a common umbrella organization for all biodynamic associations, in all countries. By this, the associations, representing the biodynamic impulse and the Demeter associations that lead and certify the brand, come together as one organization.

Further information can be found at: [how should this be formatted?]

<https://www.youtube.com/watch...>

During the Agriculture Conference 2020 at the Goetheanum in Dornach (Switzerland), the new international organisation “Biodynamic Federation Demeter Internat...

Heal Yourself, Heal Your Garden

Abigail Porter

“Perceive the helpful effect of a fragrant aromatic meadow, full of plants with an aromatic scent! Then you become aware of the marvelous mutual aid prevailing in all life. The aromatic property which here expands and which is different from the mere aroma of life – it spreads its scent abroad...it is this which works from without upon plants.”

Rudolf Steiner

Agriculture Course (Adams translation)(pp. 69–70)

Rudolf Steiner selected very specific plants to be made into preparations added to composting materials to revitalize and regenerate the Earth. He chose plants from his geographic region that were the most potent representatives of the energetic qualities, substances, and processes needed to balance and heal the Earth, while also bringing in cosmic forces for soil and plant vitality. Ultimately, using these plants in agricultural processes would provide food with the life force and nutrition necessary for the spiritual development and evolution of humanity and the Earth.

According to Steiner, just having these plants growing on your land has a beneficial effect on the soil and surrounding vegetation, since they both create and attract what is needed to augment the life force of the soil and plants. The roots exude substances into the soil, and the aroma and molecules from the leaves and blossoms spread through the air, strengthening other plants growing in the vicinity. Also, the decaying matter from the plants add trace elements and other nutrients to the soil. Just as all substances have their own individual vibratory frequency, so, too, these plants radiate their healing frequency into the surrounding atmosphere. As we walk past them, our energy fields interpenetrate, and as we breathe, we inhale some of their substance, benefitting from their healing presence.

Whole books could be written on each one of the plants, including everything from their value as biodynamic preparations, to their contributions to the soil, culinary uses, and the history and research of their therapeutic application. However, for the purpose of this article and future articles on these plants, we will focus on a summary of the medicinal and culinary benefits to hopefully inspire you to make them part of your life to restore and maintain health.

It turns out that these same plants (Yarrow, German Chamomile, Stinging Nettle, Oak Bark, Dandelion, and Valerian), have been used since very ancient times for their medicinal qualities. By growing them in our gardens, we can enhance the vitality of our crops and practice our own

more independent health care. Just as the goal in biodynamics is to bring our farm or garden to self-sufficiency, so too we can become more self-sufficient by adding these plants to our home medicine chest.

Dandelion and stinging nettle are the earliest to appear in the spring and are my favorites because all parts of these plants can be used medicinally and as nutritious, healing foods. Both plants are wonderful, nutrient-dense spring tonics to clear out winter stagnation, to cleanse the blood, liver and kidneys, and to strengthen our immune systems. They are good survival foods and free health insurance. All parts of the plants can be dried for winter use and made into tinctures and extracts for our health. We can also make teas and cold ferments from them to strengthen crops, repel pests, and fertilize plants. Dandelion is featured in this issue but I wanted to mention stinging nettle since it emerges at about the same time and is extremely nutritious—strengthening for the immune, lymphatic, and musculoskeletal systems, as well as helpful for the upper respiratory tract (especially in pollen season) and beneficial for overall vitality.

“The innocent little dandelion! In whatever district it grows, it is the greatest boon; for it mediates between the silicic acid finely, homeopathically distributed in the Cosmos, and that which is needed as silicic acid throughout the given district of the Earth”

Rudolf Steiner

Agriculture Course (Adams translation)(p. 99)

Dandelion (*Taraxacum officinale*) is antibacterial, antiviral, antiparasitic, anticarcinogenic, and anti-inflammatory. It has been used for heart disease, cancer, diabetes, obesity, hepatitis, digestive issues, and depression. Rich in antioxidants, trace minerals, calcium, potassium, and vitamins B, C, D, and K, it helps to rebuild the body. Calcium content of the leaves is twenty times higher than kale. It has more beta-carotene than carrots and is the third richest source of vitamin A, following cod liver oil and beef liver, as well as having more protein than spinach. Over the centuries, dandelion has been prescribed to increase the milk flow in nursing mothers, and spring dandelion has been fed to cows to increase cream and milk production. Dandelion has chelating capacity and detoxifies the human body of heavy metals, while it also purifies the blood, liver and kidneys.

Gerasimova, the Russian chemist who analyzed the dandelion for, among other things, trace minerals, stated that “dandelion [is] an example of a harmonious combination of trace elements, vitamins and other biologically active substances in ratios optimal for a human organism.” (Hobbs 1985). (*Applied Biodynamics*, Issue no. 76)

Leaves – For culinary purposes, the leaves are best harvested before the energy goes into the blossoms and the bitterness increases. Leaves can be used in teas and added to salads, smoothies, soups, pesto, and stir-fry or braised. They can be added when you ferment cabbage for increased health benefits. The leaves are diuretic and are as effective as conventional drugs, yet don’t have the side effect of potassium depletion, as they are rich in this mineral. Remember to dry some for winter use. When I was growing up on the farm, my first green salad every spring was the bowl of chopped dandelion leaves my mother would bring to the table smothered with a very warm sweet-and-sour dressing made with vinegar and honey.

Blossoms – Jupiter’s influence is epitomized in by the abundance of joyful little suns blanketing a springtime field in gold. Just looking at them raises our spirits! The blossoms are a cheery addition to salads. In addition to tea, they can be made into fritters, jelly, syrup, kombucha, infused vinegar or honey, and wine or mead. The tight buds can be pickled to make something similar to capers. Remember to leave enough of the newly opened blossoms for the bees!

Last fall, Sonomi Obinata, farmer at KK’s the farm in Southold, New York, gifted me a jar of delightful dandelion blossom syrup. Feeling tired and a little down one afternoon, I took a teaspoon straight up. It was uplifting and restorative! I saved it to use as a “medicine” though it would be a welcome addition to tea or on top of yogurt. Since 2016, KK’s has held an annual dandelion festival to raise awareness of the many benefits of dandelion root, leaf and flowers for humans, as a benefit for the soil, and as early food for bees and pollinators. In addition, their mission, though education, is the reduction of toxic chemical sprays that enter the soil, aquifers, estuaries, and bays. Their event is a model that any farm or community could organize and replicate to raise awareness of the humble dandelion, and the value it has for us, the Earth, and all her beings.

Roots – Considered the most potent part of the plant, the roots are best harvested in late fall after heavy frost, when the energy and sap has descended. They can be also be harvested in the spring, though the sugar content is lower and the root would offer different therapeutic qualities. In Anthroposophic medicine, remedies made from the fall harvested roots are used to treat low blood sugar, while



remedies made from the spring-harvested root are used to stabilize raised blood sugar (*Healing Plants*, Markus Sommer, p.49).

Dandelion is a perennial that usually grows for five years before dying. For medicinal purposes, third or fourth year roots are recommended. The roots bring trace minerals from deep down and accumulate other nutritive substances. Studies conducted using a concentrated extract for the treatment of leukemia, melanoma, and pancreatic cancer in vitro and in lab mice has shown success. Traditional Chinese Medicine, likewise, has used dandelion for thousands of years to treat symptoms associated with leukemia, lymphatic cancer, and skin cancer.

For culinary use, cut the fresh root into slivers and add to soups and stir-frys, or ferment in brine much as you would burdock root. When using fresh root as a tea, boil for a minute, then steep for 40 minutes. When using the root in its dried form, simmer 10 to 30 minutes. Dried and roasted, the root also makes a tasty coffee substitute.

When harvesting dandelion or any other wild plants, make sure the area has not been sprayed with toxic chemicals. Also avoid picking alongside roads where contamination by vehicle exhaust or road run-off is a possibility.

I hope you will be motivated to grow all of the preparation plants on your land. I also hope you will research wild plants growing on your property both for their medical qualities and as a foraged wild food to promote your own local self-sufficiency.

For more on the history and uses of dandelion, as well as an interview with Hugh Courtney on how to make the

compost preparation BD 506, see *Applied Biodynamics*, Spring 2012, Issue No. 76.

References and Resources

Grow, Forage, Cook, Ferment – Over 50 dandelion recipes: <https://www.growforagecookferment.com/>
Dr. Christopher's Herbal Legacy: https://www.herballegacy.com/Chhabra_Medicinal.html
Susun Weed: <http://www.susunweed.com/welcome.htm>
Paul Tappenden, forager: [Facebook.com/people/Paul-Tappenden/](https://www.facebook.com/people/Paul-Tappenden/)

Natural Living Ideas: <https://www.naturallivingideas.com/>
CANCER RESEARCH
<http://www.uwindsor.ca/dailynews/2015-02-18/human-clinical-trials-cancer-killing-dandelion-extract>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018636/>
<https://www.ncbi.nlm.nih.gov/pubmed/22647733>
<http://derekthewolf.com/dandelion-root-cancer-monopoly/>
<https://reset.me/story/dandelion-root-kills-cancer-cells-in-lab-tests/>

Dandelion Syrup

- Pick blossoms in the morning.
 - Remove the petals from the bitter green part.
 - Measure the amount of petals, and place them in a non-aluminum pot with equal amount of water.
 - Boil the petals for 5 minutes, then remove from heat and cover. Steep overnight to extract as much flavor as possible.
 - Pour the petal “mash” through a strainer lined with cheesecloth or muslin jelly bag. Squeeze out liquid.
 - Measure the liquid and put into a pot with equal amount of organic cane sugar. Cut up and add some organic lemon or just lemon juice. (Jelly can be made by adding pectin and more sugar)
 - Bring to a boil, stirring to mix well. Reduce the heat so it is just barely boiling and let it cook down for 1 ½ hour or longer until it thickens.
 - Pour the liquid through a strainer and into a jar(s). It will keep in the refrigerator for about 3 weeks. For a longer shelf life, the syrup may be canned.
- Remember – only pick blossoms from fields or lawns that haven't been sprayed. Avoid older flowers with brown or damaged petals. Rinse in water or brush away any insects on the flowers. The petals can be removed from the base

by snipping with scissors or twisting off. Save the green part to add to tea. Here is an alternate recipe: <https://www.earthfoodandfire.com/dandelion-syrup/>

Dandelion Root Tincture

- Tinctures can be made from roots, leaves, blossoms, or seeds from almost any medicinal plant. Vodka or brandy can be used for dry herbs. Everclear (150 proof alcohol or higher) is frequently recommended for fresh herbs with a higher water content. So far, I haven't had a problem using vodka with fresh plant material though. Extracts can also be made with organic apple cider vinegar or vegetable glycerine.
- Fill glass jar 2/3 full with fresh chopped dandelion root. (If using dried root, use half or one-third amount).
 - Cover with vodka to within one inch from the top. Cover and label with date and contents.
 - Allow the tincture to infuse in a cool dark place, giving it a shake once a week or so. The dandelion root tincture needs at least a month to infuse, but ideally, 2-3 months to gain full potency.
 - Once the tincture is finished, strain it through a fine mesh strainer, and store the tincture in amber dropper bottles.

Corn Trials at Viva La Vida Foundation

Mary Maruca

Caren von Gontard, a guiding force for the formation of Viva la Vida, published a fall account of some corn trials at a farm in Colorado. The farm had been under biodynamic cultivation for 12 years, with some years fallow. Although this was the third year that corn had been grown on the land, it was the first year that the seeds had been grown without the use of the BD preps. Instead, the farmers employed a spiritual protocol. To describe it, Caren used such

words as “allowing” and “supporting”—their goal was for the plants to evolve toward their individual destiny. The result? Many of the corn stalks produced multiple stems and all produced multi-eared, fully formed fruit, indicating, as Caren said, that the cosmic forces fully filled the form. The 1.5 acres produced approximately 240 bushels. The results were so interesting that I asked Caren a few questions:

Q: Could you speak to your personal experience of working

with a spiritual farming protocol for corn? For example, I am reminded of what indigenous farmers in the dry southwest do when they sing their prayers to the corn before planting and later to help it grow.

A: Since I began my farming journey from Waldorf teacher training through various other Anthroposophical endeavors (biographical counseling training, storytelling, and more) and ultimately to biodynamics, I had a spiritual practice of sorts and used it behind or in association with all the activities on our farm. When I finally began studying with Enzo Nastati, I developed a more refined sensibility for the forces behind the practices of biodynamics and eventually began to enhance those practices to include what I would call more “evolved” and truly regenerative agriculture.

I don’t mean this in the newly coined use of *regenerative*, concerning the meaning of which I am not actually clear. I mean it in the sense that plants are evolving just as animals and humans are evolving. By supporting the natural evolution of plants we are supporting the true regeneration of their species and varieties. Allowing and supporting plants to “become” what lies in their evolutionary destiny means to allow the spiritual being of each species the freedom to develop as it intends and not as humans prefer. For this, we must listen deeply and be open to receiving any message whether it coincides with our desires or not.

As one example, some plants are destined to retire completely. In modern environmental parlance that means they are destined to become extinct. We must ask the question: is this a good thing or a bad thing? While the environmental movement may assert that extinction is a so-called bad thing, the spiritual world includes disappearance of species and appearance of new species, or the adaptation of current species to become something different as integral parts of natural evolution. So these changes are neither good nor bad; they are simply part of evolutionary wisdom.

One must ask oneself then, as a farmer or gardener, if we wish to support the plants to become what they want to become? Are we willing to accept the consequences of this on our own farms and in our own lives?

Every farmer knows from experience that various species are becoming more and more difficult to grow. Every farmer seeks out the drought-resistant and heat-tolerant lettuce rather than older varieties that thrived more heartily in more temperate climates than we now may be experiencing. But how often do we have the patience, the time, or the inclination to allow our own plants to evolve within our own farm and thus to adapt to change? Do we allow some of our plants to always go to seed and carefully replant and nurture each generation along, which could very well be a task we pass on to our children or grandchildren?

Q: How did your protocol develop?

A: Biodynamic Anthroposophist and farmer Enzo Nastati has been working with plants and agriculture for over four decades. During that time he has faithfully worked toward a deeper understanding of the kingdoms of nature and our role and duty towards them. The specific protocols Enzo has taught us over the years come from his personal experience, but are only a guiding principle. Each and every farmer has to find his or her own particular methods, words, and spiritual language to meet each and every situation. As Rudolf Steiner reminds us: Evil is a good misplaced.

Q: Where did your corn seeds come from?

A: The corn we planted in our first trial was from organic seed purchased from a seed supplier. The first year we planted that seed, we used standard biodynamic practices: compost made with the preps, multiple applications of 500 and 501 plus cow pat pit* made on the farm.

The second year the seed from that harvest was grown using the Trinium products developed by Enzo Nastati. All the Trinium products began in the past as biodynamic preparations enhanced through homeopathy, and further spiritual methods and natural additives.

Last year, no products were used on the planted corn



Corn in the field

but we gifted the corn images we had worked on from the previous Holy Nights until planting in the spring.

Q: What personal alignment/preparation is required to work with the corn seeds and the land in this way?

A: The consciousness of the farmer is of utmost importance, but love is the most critical. To gift our own willing hands and loving hearts to the mineral, plant and animal kingdoms—all of which reside in any place we plant—carries far more effect than any preparations we could ever use. Asking forgiveness of the kingdoms of nature for man's violations is the first step. Committing to avoid harmful actions and to bring only loving and healing actions is the second step. The third step is to get out of the way and allow the plants to speak for themselves, then willingly support what they ask for.

These are not a hierarchical list of steps, but rather all must be done simultaneously. It's a long and arduous journey for any farmer to undertake, as it requires our genuine selves to participate. Nevertheless, it is a journey of joy and surprise, and offers the greatest rewards.

Q: Does this process relate in some way to Steiner's three-fold organism that he hoped the farm organism and communities could move toward?



Corn from the trials

A: Though we have never spoken directly in our seminars with Enzo of this aspect of Steiner's many gifts to us, it seems apparent that Steiner viewed the farm organism as a most important aspect of agriculture, and agriculture as one of the most important tasks of our time. Given the timing of the Koberwitz seminar in Steiner's life, being one of the last offerings he left to us, we can reasonably understand that it is a basis for understanding the overall three-fold structure of man, of community, and of our farms.

Q: Have you planted biodynamic corn in this field before but more the regular way with the preps or the Trinium method but not at this same spiritual level? If so, what is the yield difference from planting using this protocol?

A: This particular corn patch was a newly planted section of a hayfield that we had plowed the previous autumn. The most remarkable result in this field was that the weeds were minimal. In an old hayfield where alfalfa, clover, and mixed grasses had lived, it is unusual to not have a lot of that grow up the first year of conversion.

Q: Did you plant the pumpkins with the corn (3-sisters kind of planting but without the squash?) in the same way, aligning with the seed? What were the outcomes?

A: We planted pumpkins and squash along the edges of the field where the plants could receive enough sunlight to flourish. All the plants thrived and produced multiple fruit. Some of the pumpkins produced three, four, even five full-sized pumpkins by harvest time.

Q: You mentioned that you set intentions for the corn when going into the field and that these intentions primarily were reflected in the way the corn developed. Had any work been done with the corn in advance to make you think these corn stalks might be shorter than usual? It seems powerful that your intentions were reflected in the corn. Would you suggest others begin to work in such ways and, if so, how?

A: Every year during the Holy Nights, a group within our community here in Paonia come together to listen to our seeds, to imagine their requests, to paint or draw the progression of those plants from seed to flower to the next generation of seed, and to commit to supporting them when we plant the seeds in the spring.

We spend a few hours together on New Year's Eve afternoon working with our seeds and painting the images we receive. Then, that night we grind Three Kings Preparation together in silence from 11:30 P.M. to 12:30 A.M. of New Year's Day. At the Midnight Minute, together we perform a series of eurythmy gestures and recite several evocations while we place our intentions for the coming year to the spiritual world.

Q: Will you plant again in 2020? If so, is there anything you plan to do differently next year?

A: We will plant this section of the field again, but likely the corn patch will be smaller. This is only because we need to plant other market crops, and that is a good field for them. We are also beginning to plant broom corn as a trial and will use a portion of the field for that.

We will again bring our images and paintings created on New Year's Eve to the field and offer them to the seeds at planting. Further, during the growing season we offer gestures to the plants at various stages to support their development and evolution. These gestures might be called eurythmy for plants or even *Dien chan* (a form of reflexology developed to help sufferers in Vietnam during the war years) for plants, offered at specific moments in their development. But most of all, we give the love of our hearts and the willingness of our hands to the spiritual beings of the plants themselves.

*Editor's Note

Cow pat pit may sound like barrel compost, which Maria Thun

developed, but she used wooden barrels, buried them, and put the mixture in to cure. Different qualities result from different sizes and shapes of barrels and the different woods they were made from. But Caren was trained by Peter Proctor in Australia. He made cow pat pit, perhaps due to the cost and scarcity of barrels. A pit is dug and the mixture put into the pit to cure.

Though, in general, we may say that these two forms are similar, it is important not only in the work of Viva La Vida to be precise with language but also in our overall use of language. Generally, we are rarely precise, though the spiritual world is absolutely precise. This raises the question of how we communicate with the other realms—how can they know what we've done, are doing, or want to do if we are imprecise in our language? Most likely, we can't even know. It would be good if we strove for precision, which includes calling what we make by its correct name, which is why this distinction is made here as a editor's note.

One Intern's Experience at Viva La Vida

Joe Couling*

I visited Viva la Vida in autumn 2019 for three months as an intern. I found that there are many exciting projects underway, and 2020 looks like an important year. I'm looking forward to returning again in the Spring!

Spiritual Agriculture: Beyond Biodynamics

Studying biodynamics in the UK left me with the impression that the potential for a spiritual agriculture based on Rudolf Steiner's indications had not yet been realized. The work of biodynamic pioneers over the last century has "prepared the ground," and with the indications given by Enzo Nastati and the work of Viva La Vida, the "living seed" of spiritual agriculture sown by Rudolf Steiner is germinating in the twenty-first century.

Spiritual Agriculture In Action: The New Market Garden

The new market garden and farm market venue at Viva la Vida came into being this autumn, taking spiritual insights and bringing them down to earth in the form of simple, actionable practices to allow the human being to "become the preparation." Though it is still early, the vibrancy and vitality of the winter crops was definitely beyond expectations. The many possibilities inherent in spiritual agriculture are only beginning to be explored: such as replacing physical intervention in the farm organism with eurythmy gestures and mediating subtle life forces through the human being by the use of conscious human intention.



Spiritual Architecture

During my stay, I participated in the building of a therapeutic house, based on Enzo Nastati's indications, and I visited a completed house where the principles of spiritual architecture had been put into practice. Applying the principles of sacred number and measure to the creation of living spaces and architectural design is a profoundly



Spiral design roof structure

important area for future research as this ancient science finds new expression in the 21st century.

The School for Spiritual Agriculture & New Dairy Project

I visited Lucas Farm, the site of the future Colin Dunbar School for Spiritual Agriculture, and saw the plans for the future school buildings and farm. The site, one day, will become a global demonstration site for spiritual agriculture and architecture, and students from all around the world will gather there to study and practice. Work has already begun to prepare the land as a demonstration. The new dairy project is scheduled to begin in 2020, and the cheese-makers are busy refining their recipes!

Results from the Corn Trials

In autumn 2019 I also saw the results of field trials following the corn harvest. The trials were a creative participation with the spiritual world to refine the morphotype of the corn using the imaginative inner-picture forming

faculty of the human being. The ideal corn was visualized and turned into an artistic expression (i.e., a painting). The hypothesis informing this work is that through forming an inner-picture of an archetype and working creatively with that inner picture using an artistic medium, the final expression of that archetype can be affected. This creative process is the moral antithesis of genetic manipulation because the intention of a conscious human being is grounded in realizing the highest evolutionary potential of the particular crop in alignment with larger patterns of cosmic evolution.

The Human as Preparation

My overall impression of Viva la Vida and the work of spiritual agriculture is that it represents the end of the divide between spirit and matter, between consciousness and the physical world. When we sow a seed we are engaged in an act of co-creation within a spiritual ecology of intelligent beings. The empowered human stands at the centre of a

purposeful and meaningful trajectory of cosmic evolution, whether we act in service of the whole, or just in service of our own discrete part is of cosmic significance.

Is a New Era of Spiritual Agriculture Dawning?

It is no longer possible to leave consciousness out of the equation when we consider the social, environmental, and political crises taking place across the entire earth right now. The realm of agriculture is situated at the heart of all culture, and it is in the realm of agriculture where the defining events of the 21st century will take place.

With the fallout from Fukushima, 5G electrosmog, cross-contamination between GM and non-GM crops, a chemical-saturated biosphere, and rogue nano materials wreaking havoc in living organisms, there is much work ahead. But there is also an unprecedented opportunity for a new spiritual consciousness to emerge.

Looking Forward to 2020 and Beyond

The work of Viva la Vida has created a fertile ground for a revolution in agriculture to take place. What is now needed is for people who feel called to work in spiritual agriculture to come forward and participate. It is from conscious communities of like-minds that cultural innovation and a new consciousness can spread.

Who knows what the future will hold? The work of spiritual agriculture goes beyond working in the



Market garden food being grown

field. New social forms, festivals, and arts also need to emerge to sow the seeds of a spiritual consciousness and connect communities to the agricultural work. In the future, the division between farmer and artist may disappear altogether, along with the division between labor and leisure, art and science.

Perhaps one day agricultural communities will have as many eurythmists, storytellers, artists, and poets as they do farmers.

**Reprinted by permission from Viva La Vida*



Cheese being aged

How Do You Choose Your Best Seeds?

Seed Saving Quality and Biodynamics

Stewart Lundy

In truth I have seen many a sower steep his seeds and wash them beforehand in black olive-lees, that the fruit in the treacherous pod might be larger and soften quickly even over a little fire: I have seen them, though long chosen and toilsomely approved, still fall off unless the strong hand of man picked the largest year by year: so it is fated that all things run to the worse and fall dropping backwards; even as one who with strain of oarage urges a skiff up stream, if once he slacken his arms, the prone river current sweeps him headlong down.

—Virgil, Georgics

A lot of you may already save seeds by the biodynamic calendar, and many of you are probably familiar with the concept of “nutrient density.” In short, nutrient density means much nourishment is packed into a small place. The more nutrient dense our food is, the better it’s going to be in terms of our own health but also in terms of the flavor.

Someone once told me about not just saving the “largest” seeds but, instead, the “densest” seeds. Not many people have bothered to engage this practice in biodynamics—to my knowledge—but it is practiced by conventional farmers. By some claims, the first time a farmer shifts to save seeds by density (not just size) they get a 20 percent improvement in disease-resistance and even yields. Within a biodynamic framework, this has significant grounding if we refer

to Goethe’s work, *The Metamorphosis of Plants*, in which he refers to seeds as the *greatest contraction*:

From the seed up to the highest development of the stem-leaf, we observed first an expansion, after which we saw the calyx arise from a contraction, the petals from an expansion, the reproductive organs by another contraction, and shall now soon make out the greatest expansion in the fruit and the greatest contraction in the seed. In these six steps Nature completes, without pausing, the eternal work of the propagation of vegetables.

When seeds are saved by density—contraction—we aren’t saving the biggest or the smallest but, instead, we are selecting for the seeds that have undergone the greatest contraction and have the fullest possible genetic information coiled inside the raw potential of the seed.

I looked up what a seed density sorter might cost and they are quite expensive—prohibitively so for small farmers or gardeners. But then, one day, I had an epiphany: I could sort seeds by density in my own kitchen!

Unfortunately, I have tested different seed sources—even certified biodynamic ones—and the results are wildly different and some sources are MUCH better than other sources!

Directions for Sorting Seeds by Nutrient Density

The simplest way any gardener or farmer can sort seeds takes only a few minutes. All you need is a couple quart glass jars, water, a fine screen mesh (or cheesecloth), paper towels, water, sea salt, and a spoon.

- 1) Fill one of the glass jars halfway with water—if you’re being very particular, you can use distilled water to start.
- 2) Dump ONE variety of seeds into the water and stir it gently to remove bubbles.
- 3) Once the seeds settle, carefully pour off the FLOATING seeds and catch them in the mesh (metal or cheesecloth—whatever you have). Capture the water in a second mason jar—you will keep reusing the water!
- 4) Place the strained floating seeds on a paper towel to dry—label these as “A.”
- 5) Pour the water back into the original mason jar that still contains the “sunk” seeds. Now all the water is back in the original jar.
- 6) Stir the water again to see if more will float. Strain these and add them to the group identified as “A” in Step 4. Repeat until no more float.



Sorting seeds

7) Now that no more seeds are floating, add 1/2 teaspoon of sea salt (REAL salt is cheap and safe). Stir until salt is dissolved. You will notice now that different seeds float! Strain these and label them as “B”—return water to first jar and stir again, separating seeds as “B” until none float.

8) Once no more seeds float, add another 1/2 teaspoon of sea salt and stir again. New seeds will float. Separate these, label them as “C”, and then stir again to see if more float. Separate any stragglers, then repeat until very few seeds remain.

9) The seeds that are saved LAST are your best. Germination tests will demonstrate this to you. You will not have many in your “very best” category, but it doesn’t matter—save the best (densest) 20% of all the seeds and plant those.

It’s really that easy. You don’t need massive technology or tricks.

Stewart Lundy is co-owner with Natalie McGill of Perennial

Roots Farm located in Accomac, on the Eastern Shore of Virginia, where they grow heirloom produce, fruit, eggs, meats, and make value-added products for sale at farmers markets. They make biodynamic preparations on their 50-acre farm and orchard, and incorporate permaculture agriculture with biodynamic practices. The farm is certified Naturally Grown and is also home to heritage breed pigs, sheep, goats, geese, ducks, chickens, rabbits, and turkeys. More recently, they have been growing medicinal plants for tinctures. Stewart is founding president of the Delmarva Farmers’ Union, where he launched the peer-reviewed Certified Delmarva Grown program. They are a mentor farm in the North American Biodynamic Apprenticeship Program and are looking for an apprentice for the 2020 BDA foundation year. Stewart spends his free time giving workshops, consulting, and researching esoterica. For more about their farm and the apprenticeship opening, see www.perennialroots.com/

In Transition—Apostrophe Orchard

Mike Biltonen

Every once in a while—every ten years or so—I get a hare-brained idea. My most recent was to plant an apple orchard with the dual objective of apple production, primarily for hard cider, and also a site for research projects and educational events aimed at those interested in holistic orchard management. I named the orchard *Apostrophe* after a Frank Zappa song that explains that the crux of the biscuit is the apostrophe. Huh? Well, during my due diligence phase I learned that the song Cosmic Debris is about a conversation a dog has with god; and the apostrophe is a grammatical tool that brings things together. So, I thought, what better way to launch an orchard than as a place, a concept in fact, that brings knowledge and wisdom together from a variety of sources to congeal a workable holistic approach to growing apples in the northeast. The basis of my holistic approach is to use biodynamic practices and principles in a broader biologically and ecologically driven organic program.

Apostrophe didn’t start out as an orchard but rather as grafting project with no real purpose. In 2014, I grafted about fifty trees planted in a small backyard garden. In 2015, I repeated this with a few more trees. And in 2016, I did it once again. The varieties started out being a mix of dessert and dual-purpose apples, but included some true hard cider varieties. This quickly shifted, however, to grafting mostly traditional **coders** varieties like Kingston Black, Dabinett, and Porter’s Perfection. The last year of grafting I used primarily wild or feral varieties that true cider makers had chosen to be “winners” in the terroir-driven world of



Apostrophe Orchard in the snow

hard cider. The orchard was officially planted in the spring of 2017, after erecting a deer fence and making some very basic site preparations.

I knew the soil was acidic (mid 5s) and needed some attention, given that it was a heavier soil (not uncommon for this area) and it had been abandoned since it was used as a vineyard. Nonetheless, the trees took off, and Apostrophe Orchard was on its way.

It's important to mention that one of the other objectives I had was to see if it was feasible to establish an orchard a la Masanobu Fukuoka—to reduce the inputs and, theoretically, the cost and overall risk. Underlying this premise was the assumption that starting an orchard with bio- and ecological foundations would build in greater resilience against the myriad insect and disease pests fruit growers deal with already.

I'd be lying if I said everything has gone perfectly. It hasn't. But overall it has gone really well. The trees were planted by ensuring that each "hole" was amended perfectly with round stone in the bottom and mulch/compost on top, before planting the trees into the soil that came out of the hole. Each tree was then amended at its base with compost and hardwood chips inoculated with mycorrhizae. To date the trees have been sprayed "maybe" 3–4 times each season primarily with foliar nutrients and biological fungicides. Each of the last two seasons I have applied BD500 each spring and BD508 throughout the season (approximately two times during the summer growing season) —and so far so good. But 2020 is a new year, and the stakes are raised as the trees move into bearing.

Beginning March (or April) 2020, we will apply biodynamic tree paste amended with neem oil to get the trees off to a good start. This will include a full tree BD508 wash to reduce overwintering inoculum. Then, as the season progresses, the remaining biodynamic preps will be applied as indicated by the growing season, weather conditions and the biodynamic calendar. BD500 will be applied 2–3 times during the spring, complemented by BD501. Of course, the preps will be used both from a pragmatic, applied perspective, but also a pure biodynamic perspective as we work on improving the health of the orchard through the influence of individual preps.

Apostrophe is a small chunk of land (2.5 acres) in need of revitalization. The use of the preps, in addition to other holistic practices, should bring the orchard around to a level of health and vitality that requires minimal intervention. What are those "other" interventions? For example, we are working with the Johnson-Su composter, biochar, compost teas, indigenous microorganisms, and foliar nutrients, as well as an increasingly diverse mix of tree and plant species in a restorative agriculture approach. Time will tell where this all falls

out, as some varieties are not as resilient as others and will likely simply succumb to pressures from diseases or insects. However, as those varieties that do not survive are replaced with other plant species, such as various nuts, elderberry, currant, Siberian pea shrub, and medicinal herbs, the orchard composition will shift away from apples primarily but towards greater resiliency overall. Once we enter the third decade of the twenty-first century, with climate change bearing down on us, using biodynamics to increase resiliency of our farms and orchards becomes ever more important, especially as a way to reconnect spiritually with all that matters and sustains us every day.

Apostrophe Orchard, if nothing else, will serve as a testing ground to increase our knowledge and ability to successfully apply biodynamics in perennial cropping systems. While some information exists, little direct experience with biodynamics in orchards or other perennial cropping systems is available for the northeastern US growing environments. We plan to take a holistic approach to gathering information and extrapolating that for others to apply to their orchards and farms.

On April 25, Know Your Roots and JPI are teaming up for a biodynamic orchard workshop at the JPI farm in Floyd, VA. As much as the workshop will be about biodynamic orcharding in general, there will be plenty of discussion about what we are doing at Apostrophe currently and what we plan on doing going forward. Contact JPI for more information or to register:



Dandelion Blossoms Sought

JPI welcomes your contributions of dandelions, chamomile, and yarrow for our preparations. Now is the season to collect dandelions! Your efforts ensure an adequate supply of BD #506. Thank you to all those who have contributed in the past. Would you like to harvest dandelion or other preparation materials for JPI? If so, please contact JPI for collecting and drying information.

New York Regional Prepmakers Group Forms

Mike Biltonen

The Agricultural Lectures, one of Rudolf Steiner's greatest gifts, were presented in the summer of 1924. Had Steiner lived much beyond this time, he likely would have shed more light on the biodynamic preparations and the importance of honoring the elementals than he did that summer. Nonetheless, what he gave the world provided the foundations of agricultural biodynamics as we know it. He was neither dogmatic with his words nor his intentions. Steiner encouraged everyone to question and explore the making and use of the preps. In the nearly 100 years since those now famous lectures, a flurry of work has done just that, with some of it coming from numerous bioregional groups dedicated to carrying on what Steiner gave us.

In early 2019, to move forward with their own prep making as part of a regional group, biodynamic farmers, enthusiasts, and the generally curious gathered for the first "virtual" meeting of the Finger Lakes Biodynamic Prepmakers group. While not the first ever meeting of such Finger Lakes enthusiasts, it was certainly the most recent iteration in several years, having been sparked by the suggestions and urgings of Kaitlyn Voellinger and Nathaniel Thompson. Kaitlyn, a BDA board member, works at Wegman's Organic Farm in Canandaigua, NY. Nathaniel Thompson is a long-time certified biodynamic farmer in Trumansburg, NY (see *Applied Biodynamics*, Spring/Summer 2018, Issue no. 93). The Finger Lakes region of New York is located in central New York west of the Catskills and south of the Lake Ontario region.

Our first prepmaking session took place on May 11 at Remembrance Farm. Roughly a dozen hardy souls helped make barrel compost, horn silica, oak bark, and nettle preparations. The fun-filled, collegial gathering made the hard work simply a joy. Paul Brock of Silver Thread Vineyard provided wine barrels for the barrel compost. Jennie Clifford of Carlton Farms provided the silica. Jess Crabtree provided the oak bark. Remembrance Farms supplied the cow skulls, manure, space, tools, and impetus to make the gathering happen. Everyone else who attended chipped in with plenty of elbow grease and financial contributions to defray costs.

Our fall prepmaking session occurred October 26, also at Remembrance Farm. Our fall group had fewer attendees than the spring gathering—apparently farmers are busy in the fall...who knew? We made horn manure and stuffed chamomile and dandelion before burying near the BC and nettles from the spring session. We also dug the horn silica and stored it, in anticipation of a spring growing season that will likely come too quickly. During the

upcoming spring, we anticipate digging and using the other preps we made.

Some aspects of our enthusiastic prepmaking did not line up perfectly with proper technique. That said, you can never go wrong applying biodynamic preps you've made yourself with local ingredients on local land. The workshops also provided impetus for a winter discussion group gathering to read and discuss Steiner's Agricultural Lectures in anticipation of not only more prepmaking, but better prepmaking and use.

We have our next session scheduled for May 2020, at which time we hope to have everything needed to make the spring preps and everything sourced that we will need for the fall so we can make the full range of preparations. As the Finger Lakes group continues to grow in size and vision, we intend to interact with other like-minded groups that are fully committed to biodynamic farming as well as those striving for a more holistic farm future. Biodynamics is the salvation of the earth and, brother, do we need it now more than ever!



Group with barrel compost

Farewell to Pat Frazier, Hello to Garret Long

Clay Wesson

The JPI staff, board members, and supporters would like to express our deepest gratitude to Pat Frazier for her tireless service and long-term dedication to the Josephine Porter Institute. Pat joined the board in the fall of 2012 and after seven years of leadership, the majority of that time spent as our board president, she stepped down in October 2019. During the years, Pat often traveled from her home in Colorado to Virginia to lend her expertise to JPI as it navigated the ups and downs of transition and change. Buoyed by her strong commitment, the JPI farm organism came into its own and continues to grow and strengthen. Pat holds a deep reverence for the JPI farm and still carries a vision for its potential as it aims toward its fullest expression.

At the end of her seven-year cycle with JPI, Pat has indicated that she feels complete with her work at JPI and is turning her energy towards her local community and spending more time on her farm. On the national front, she remains involved in the Fellowship of Preparation Makers, as well as the planning committee for the North American Biodynamic Conference of the Biodynamic Association, which will take place in Westminster, Colorado, November 11–15, 2020. We look forward to Pat's return to the JPI Farm to conclude the four-part Perma-dynamics series that began in Spring of 2019.

In 2017, Pat gathered JPI staff as a group to plant an oak tree at the JPI Farm at a location where it would provide shade for preparation making. The oak continues to thrive. In gratitude for Pat's many years of dedication and service, JPI staff and board members are donating a tree of her choosing to her farm in Colorado. We wish her all the best in her new endeavors.

Our newest addition to the JPI board is Garrett Long, who joined in October 2019! Garrett learned of JPI in 2012 when he was working at Apricot Lane Farms, where he began working as a volunteer coordinator and eventually transitioned to the research and outreach coordinator position. In 2017, Garrett received his master's degree in Soils and Biogeochemistry at University of California-Davis, and has been doing soil life and health consulting for farmers in his bioregion. Garrett shares his excitement around education and research with a passion that is inspiring. Welcome Garrett!

In Gratitude

- JPI extends special thanks to all the volunteers, and to everyone who collected and sent dandelions and other preparation plants this year to support JPI's work.



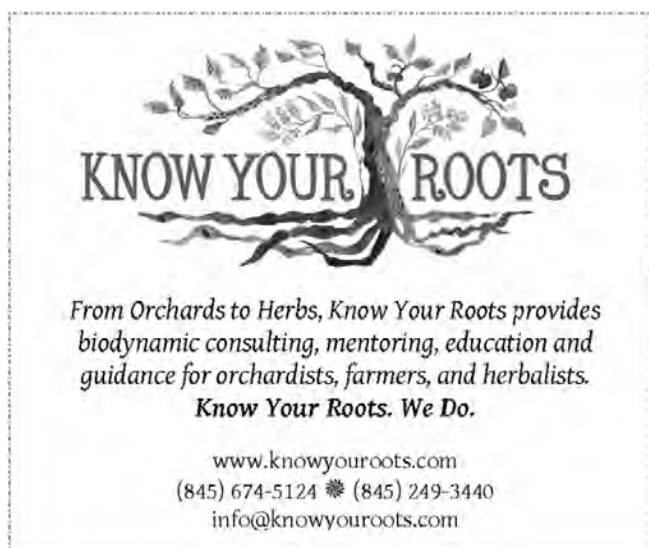
Pat stuffing horns for BD 500



Garret

Did You Know?

- Researchers at the Washington University in St. Louis are finding that crops that fed ancient civilizations may have been capable of feeding more people than traditionally grown corn was known to have fed. Writing in the *Journal of Ethnobiology*, Natalie Muellert, assistant professor of archeology, described growing and then calculating yield estimates for two annual plants grown in eastern North America for thousands of years. These were goosefoot (*Chenopodium sp.*) and erect knotweed (*Polygonum erectum*), which, grown together, proved more productive than when grown alone—the same principle that made it more productive to grow the three sisters, corn, bean, and squash, together, rather than in isolation. The yield for these two plants, grown together, proved to be within the range for traditionally grown corn.
- Yates House (mixed livestock and arable land), one of Britain's largest farms, is sequestering ten times more carbon than it is omitting. It reported this at the Oxford Real Farming Conference in January 2020. It seems to have to come to a comfortable place with the use of machines to work the land. Its website reports it sold its plough in 2004 to ensure that it wasn't used again. It does use various cultivators. The farm follows biodynamic principles pioneered by Alex Podolinsky.
- According to the United Nations Food and Agriculture Organization, “if food waste were a country, it would be the third-largest greenhouse gas emitter. The Natural Resources Defense Council also has indicated that in the United States alone, food waste generates as much gas emissions as 37 million cars. Nevertheless, cities are taking baby steps toward dealing with this issue, according to a December 11, 2019, *New York Times* report. In Seoul, South Korea, for example, families pay a fee for discarded food waste. This and related efforts have led to 95 percent food waste recycling in the city. Also, in Milan, Italy, a local food initiative led to development of the Milan Urban Food Policy Pact now signed by 207 cities around the world.
- What is the first thing you reach for in the kitchen to mop up a mess? In your ancestors' time it might have been an old rag. More likely now it is a paper towel, some of the fibers of which come from the boreal forests of northern Canada. The January 8, 2002, *New York Times* cited 703 gigatons of carbon locked up in the wood and soil of boreal forests. The article cites the Natural Resources Defense Council estimate that 44 percent of the pulp produced in Ontario comes from whole trees rather than waste from timber production. To help improve the statistics at a time when forests worldwide are in trouble (and thus humans by extension), recommends a return to older techniques—renewable cloth towels from our mothers' and grandmothers' generations.
- According to the Environmental Working Group, U.S. drinking water is more contaminated than previously estimated with what has been termed “forever” chemicals, those chemicals that the body cannot expel such as Teflon, Scotchguard, and firefighting foam. Tap water from 44 sites in 31 states showed that only a site in Mississippi, which has 700 foot wells, showed no sign of these substances. According to the working group, the Environmental Protection Agency has known about this since 2001 but has failed to set national limits.
- A Science Alert from November 2018 reported that scientists in Sweden have developed a specialized fuel called a solar thermal fuel, which can store the sun's energy for more than a decade. The alert described the fuel as akin to a rechargeable battery. In this case, sunlight would go into the proverbial battery and heat would come out, triggered on demand. The fuel is described as a molecule in liquid form and is composed of carbon, hydrogen, and nitrogen. When sunlight hits the molecule the bonds are rearranged, thus entrapping the light, which can be released by moving the fluid through a catalyst that releases the light as heat when needed. The energy can be stored and held this way for as long as 18 years.
- Science is wonderful, until it's not. *The Guardian* published an article titled “Invasion of the Frankenbees.” The article not only outlined the dramatic decline of the European honeybee, a creature cited as having evolved from Eurasia 35 million years ago, but also the race to create genetically modified bees immune to all the causes of colony collapse. Currently in the experimental stages, the Frankenbee research uses Crispr technology, which in the U.S. has led to the market availability of an apple that doesn't brown.
- In another example of human ingenuity knowing no bounds, the Institute of Allergy and Infectious Diseases is working on a vaccine that would protect from most flu strains, cited in *Technocracy News & Trends*. The catch: it would inject synthesized genes into the body, which would then load human cells with their DNA and instruct the cells to produce powerful antibodies. First the human genome was mapped. Now it is being changed.



Books Added to JPI Catalog

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- *Y On Earth* by Aaron William Perry – \$24.99
- *Embracing Materialism and Letting It Go* by Michael J. D'Aleo – \$20.00

For children

- *Pippa and Pelle* by Daniela Drescher – \$9.95
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BD 506—Dandelion (*Taraxacum officinale*)

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BD 508—Horsetail (*Equisetum arvense*)

Ongoing Activities

Biodynamic Association Courses and Webinar Series

For a small fee, the Biodynamic Association offers ongoing webinars on pertinent topics. <https://www.biodynamics.com/webinars>

Chesapeake Biodynamic Network (CBDN), College Park, MD

Meetings, networking, Agriculture Course study and biodynamic workshops held monthly in College Park, MD. Contact Michael Judge for the schedule at mjudge2000@gmail.com.

The Pfeiffer Center, Chestnut Ridge, New York

Workshops and trainings. www.pfeiffercenter.org

Spikenard Farm Honeybee Sanctuary, Floyd, VA

Classes in sustainable beekeeping and biodynamics. Apprenticeship/internship opportunities. www.spikenardfarm.org

White Rose Farm, Taneytown, Maryland

Educational food and farm events, festivals, celebrations and biodynamic farm days. www.whiterosefarm.com.

Online Resources:

Rudolf Steiner Archive

Lectures and books; donation requested. www.rsarchive.org/

Rudolf Steiner Audio

Audio version of lectures and books. Donation requested. www.rudolfsteineraudio.com

Bio-Dynamics Journal (1941-2007)-Soil and Health Library.

Articles by E.E. Pfeiffer, Sir Albert Howard, Albrecht papers and others. One time donation of 10 Euros. www.soilandhealth.org

<https://earthhavenlearning.ca/seed-regeneration.php>.

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“There can be no doubt, stirring by hand has quite another significance than mechanical stirring... When you stir manually, all the delicate movements of your hand will come into the stirring. Even the feelings you have may then come into it... When a man works at a thing himself, he gives something to it which it retains.”

Rudolf Steiner in *Agriculture Course*, (Adams trans.), p.77



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