



Applied BIODYNAMICS®



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Threshold Farm – Fundamental Biodynamics

Mike Biltonen Interviews Hugh Williams and Hanna Bail

In early December, I met with biodynamic farmers Hugh Williams and Hanna Bail at their orchard in Philmont, NY. Our conversation flowed from topic to topic, ranging from how they arrived at Threshold Farm and their agronomic, biodynamic practices to the current state of farming and their philosophies about life. Hugh and Hanna represent a vanguard in biodynamic thinking and practice, especially in New York, and as someone who is relatively new to biodynamics, the conversation we had was enlightening, reassuring, and educational. Most recently, Hugh participated in the North American Biodynamic Conference, held in Santa Fe, NM, in November 2016, where he spoke on topics ranging from water to orchard processes.

Threshold Farm

Threshold Farm is a forty-five acre, mixed crop, livestock, forest and orchard farm located near Hudson, New York. Farm owners Hugh Williams and Hanna Bail grow vegetables, peaches, pears, plums and apples, while also maintaining a small herd of crossbred cows of Ayrshire, Short-horn, and Devon origins. They make all of the biodynamic preparations, except one, from materials they have on site and their cows provide all of the beautiful compost that they need. They also practice a method of land engineering called keyline, which enables them to increase the water-holding capacity of the land and complete the process of closed fertility farming. Threshold Farm is the sole source of income for Hugh, Hanna, and their two children.

Born in Australia, Hugh Williams grew up on an orchard in the Blue Mountains west of Sydney. The orchard was not biodynamic, but Hugh learned later that his mother had put preparations into her compost piles since the 1950s. After attending university, Hugh traveled around the world, ultimately deciding to become a farmer while in his mid-

twenties. During this time, he came across Rudolf Steiner's agriculture lectures and became fascinated with Steiner's concept of a self-sufficient mixed farm with closed fertility cycle that includes seedstock and maintaining the correct diversity and number of animals. From that point forward, he was determined to start such a farm.



Hanna Bail and Hugh Williams

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From the Editor

Dear Reader,

I am both excited and humbled to be stepping onto the path that JPI's former editors have followed before me. I have long used JPI preparations on my backyard garden but without the full knowledge of all that goes into them and their impact on the land. Therefore, I am grateful already to be learning new information from this, my first issue.

JPI's editorial team hopes that you find something useful in this issue also. The two interviews, one by Mike Biltonen and the other by Karen Moneymaker, illustrate two ends of the biodynamic spectrum, one a farm that has successfully operated for many years and the other an equally successful farming effort that ran aground due to a less than supportive legal environment. The bottom line, however, in both instances is the strength of the preparations to build healthy, productive farm organisms.

Abigail Porter provides guidelines for spring and summer use of the preparations for you to adapt for weather conditions and the latitude of your geographical area. In addition, this issue cites an interesting webinar series offered by the



Biodynamic Association, as well as other online resources. We encourage you to participate in the Whitsun global spraying of preparations on June 3 and 4 for the healing of the Earth. News from JPI and several opportunities to serve the organization in meaningful ways round out this issue.

In this time of significant change, as familiar climate patterns alter and as we grow into the busy seasons of spring and summer, may our soils, wherever they are found, continue to build healthy resources that heal the Earth and us.

—Mary Maruca

Applied Biodynamics

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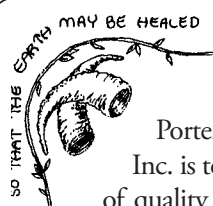
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Erratum

The editor's note on page 2 of the Fall/Winter 2016 *Applied Biodynamics* (Issue No. 90) listed Pat Frazier as JPI's executive director. She is JPI's president.



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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Welcome to Our New Editors

We were pleasantly surprised by the response to our call for editors last year. Of those who responded, JPI is pleased to welcome three of the most qualified to the *Applied Biodynamics* team. They bring a wealth of diverse experiences and skills to enhance the content of this publication.

Mary Maruca – Managing Editor

Mary has been writing and editing professionally for more than thirty years, working on projects that run the gamut from nature writing to technical documents and children's books. She has a strong interest in indigenous culture, and is passionate about conservation and land stewardship. Mary has been a backyard biodynamic gardener for ten years and was especially drawn to biodynamics after reading about the elemental realm, which she had believed in as a child.

"I felt a sort of homecoming when I spoke with those at JPI who also helped support the elemental realms through their work with the preparations. Working on this publication now seems to be a good way to continue learning while also giving back." – Mary Maruca

Mike Biltonen – East Coast Editor

Mike has been farming since 1984, and is currently working as a consultant and mentor for some of the northeast's most progressive, biology-focused orchardists and farmers. After graduating from Virginia Polytechnic and Cornell University with degrees in horticulture, and fruit and vegetable science, he worked on and managed orchards across the country. He is currently establishing a biodynamic orchard with 300 mixed apple, nut, and unique fruit trees. Mike's desire to learn more about biodynamics and "spread the word" prompted him to join the *Applied Biodynamics* team.



"I came to biodynamics out of a passion for biological farming as a means to achieve a peaceful world – this was Steiner's motivation, as well. Today, the need for more people to learn about, understand, and adopt a biodynamic lifestyle makes this effort all the more important."

—Mike Biltonen

Karen Moneymaker – West Coast Editor

Karen has worked in the wine industry since 2004 – out in the field, in the lab and in sales. She currently writes and edits for trade publications *The Tasting Panel Magazine*, *The Somm Journal*, and *The Clever Root*. Her experience includes working alongside biodynamic consultant Jeff Dawson at Araujo Estate, an internship with biodynamic nursery Lilian Berillion in France, and a week studying and touring vineyards with biodynamic consultant and author Pierre Masson. Karen spends her free time exploring the Southern California biodynamic community, and she is enthusiastic about applying biodynamics to her home garden with her daughter, Eleanor.

"I hope that my unique background in publishing and winemaking can help serve the JPI periodical in a manner that is useful and beneficial to its growth, with the added benefit of continuing to expand my own knowledge of biodynamic practices."

—Karen Moneymaker



Biodynamic Preparations Legend

BD #500 – Horn Manure

BD #501 – Horn Silica

COMPOST PREPARATIONS

BD #502 – Yarrow (*Achillea millefolium*)

BD #503 – German Chamomile (*Matricaria chamomilla*)

BD #504 – Stinging Nettle (*Urtica dioica*)

BD #505 – Oak Bark (*Quercus alba*)

BD #506 – Dandelion (*Taraxacum officinale*)

BD #507 – Valerian (*Valeriana officinalis*)

BD #508 – Horsetail (*Equisetum arvense*)

Not until Hugh came to the United States, however, did he devote himself to the full practice of biodynamic farming. He spent eighteen years on Long Island, developing techniques for growing fruit without poisons before he finally made his way to New York's Hudson Valley, where he started Threshold Farm. Today, he and Hanna successfully practice closed-system farming or fundamental biodynamics.

Originally, Hanna Bail had no interest in ever becoming a farmer, even though she grew up on a small dairy farm in

Bavaria. This changed, however, when she learned about Germany's dying forests and other environmental issues. This knowledge and eco-anxiety focused her efforts on environmental jobs. She apprenticed at a nursery in Germany and then attended an agricultural school. When she was twenty-six, she realized that if she didn't travel outside of Germany, she likely would settle down and never see the world. Hugh and his newly established Threshold Farm was her first stop on her world tour — she never really left.

“The intangibles around all of this become incredibly concrete, more real, and will become more so especially in the face of climate change.” — Hugh Williams

Fundamental Biodynamics

Mike Biltonen (MB): *There's a huge interest in holistic orchard management these days. How strictly do you adhere to the principles of biodynamics established by Steiner?*

Hugh Williams (HW): I consider myself a purist. Fundamental biodynamics is about the whole farm — a closed fertility system. This is not a hobby. Whatever we do, it has to be within the individualized landscape of the whole farm. Out of this arise many consequences over many, many years, such as healthy bee populations.

Hanna Bail (HB): We were asked years ago if we harvest only on fruit days. This is totally impossible, even if we thought it a good idea. Whatever you do, however you practice biodynamics on your farm, it has to be right and realistic. Dogma usually distorts practical farming.

MB: *An orchardist and I recently discussed the use of dowsing and the biodynamic calendar to determine when and where to plant fruit trees. However, the reality of getting things done, as well as weather and life events can force you to deviate from the strict adherence of a plan.*

HW: Dowsing is not fundamental biodynamics anyway. Fundamental biodynamics is closed farming — the individualization of a farm landscape. And, however one interprets that, one must be very devoted. We've all had good results from the calendar work, but when an apple is ripe, it is no longer subject to cosmic forces. We know that the keeping quality of our fruit is stupendous when we pick it when it is ready.

HB: When is a biodynamic farm a biodynamic farm? Years ago, I used to work at a farm in Ontario. The farm used 500 and 501, but not the compost preparations. When can one say that you are a biodynamic farmer? Who questions that? Do you have to use all the preps to be able to say you are a biodynamic farmer?¹

HW: This is an offshoot of the same problem we were just talking about. What is the core of biodynamics?

HB: Yes, biodynamics is totally associated with the preparations. It has to come from strong intent, strong will forces. We know that work with the preparations is not like other jobs. We always have to make extra effort.

HW: Why are we doing what we're doing? This year, 2016, is the first time in twenty years we haven't had apples; what are we actually doing here? Farms and the food they grow are the most intimate relationship of a person to the earth. This is holy ground. We're doing this for some higher purpose other than just for apples. Apples are great. But there is a higher purpose behind it that includes carbon sequestration and other objectives. It is also a different relationship with the earth and one's spiritual connectedness.

Making Preps

MB: *Do you make your preps strictly according to Steiner's principles?*

HW: I learned from a traditionalist, Bob Williams, in Australia. And then from Mac Mead of the Pfeiffer Center (Chestnut Ridge, NY) who learned to make preps from people who learned from Pfeiffer. Our prep making is identical. There's very little difference between our approaches. It's all pretty traditional. With the exception of *equisetum* (BD #508), which doesn't grow at this farm, all of the preps used at Threshold Farm are made here from resources found on the farm. I've made all of my own preps since the 1970s. I bypass the whole storage issue. I clean out the barn, make a big pile of compost, dig up the preps, and add them to the pile — I'm done! This approach leads to a lot of extra preparations, which we share. No compost ever leaves the farm.

HB: We do all on-farm slaughter — 2016 was the first year we didn't have an animal to slaughter in the fall because we had to do it all in the spring. We had to cut the numbers down.

HW: In 2004 I wanted to demonstrate the practicality of

Steiner's idea of self-sufficiency in relationship to horns [used for BD #500 and #501] on a closed farm like this. So that's where we are after twelve years. We have gone much more inward in developing the methodology. The intangibles of being a closed system farm are more concrete than the recipes. For example, our bee stocks are the same bee stocks we've had for many years. They are healthy and self-sustaining. We don't even check for mites. The intangibles around all of this become incredibly concrete, more real, and will become more so especially in the face of climate change.

"We have to get past living in the matrix of inherited patterns. We have to move into and live in the matrix of emergent possibilities. And that's a universal language, which nature and the earth are speaking. And the spiritual worlds are speaking. I encounter it here, on this farm. This to me is a temple precinct." – Hugh Williams

MB: *The preps are vitally important to biodynamic farming, but they are the mechanistic part of the practice. The real core of biodynamics is the spirit, the energy you put into and get out of the farm.*

HB: But there is something about the preps – it isn't just the making. When we slaughter a cow up here, it is an initiation. We don't allow a lot of people up here, only a few people.

HW: It is not for a big group to witness. It isn't a show. It is something very holy to us.

HB: This is the same for stirring the 500. It is a pretty big barrel. It is very difficult. You have to warm up to that fact. You can't just say, "Oh, I am going to do that." You have to bring a will-force to the practice. It is very different from putting fertilizer into a spray and then driving the tractor around the farm. It comes from within. Are preps mechanistic? I don't know what you mean by that.

HW: Agronomically though, the fundamental notion of biodynamics is the closed farm. The rest is how do you do it. And the question of whether we're doing this for the far future – possibly the more esoteric side, working with the preps and so on – personally, I consider them all to be agronomic tools, but tools for the proper development of mankind. Our organic matter has gone from 1.9 percent to 4.7 percent in twenty years, farmwide. So practical and spiritual are the same.

If you look at the ancient past – you know planetary history in anthroposophic terms – and then look into the far future, it's a whole long process of transformation. And the earth truly is a living being. If we align ourselves with the emergent possibilities, and there are lots of different ones,

we align ourselves with a progressive emergent possibility by doing this here on this farm – by bringing people here and feeding them the best possible food you can get – then it's real on that level.

As passionate as we are about farming and biodynamics, it is not even on the same scale as our family relationships, and other civil and human relationships. We can't let those slip. Why are we wringing our hands over what is biodynamics. It's really so concrete on so many levels. We have to get past living in the matrix of inherited patterns. We have to move into and live in the matrix of emergent possibilities. And

that's a universal language, which nature and the earth are speaking. And the spiritual worlds are speaking. I encounter it here, on this farm. This to me is a temple precinct. Look at the columns of the apple trees. Whether there are apples or not, it is still a temple precinct.

HB: If you take care of nature, nature takes care of you. And I've really felt it here. We have a CSA [Community Supported Agriculture] for the fruit, but it is not really



a CSA. We send out the notices in late May, early June, when we have an idea of what the set is going to be – when we know whether we’re going to have anything or not. So people don’t pay in advance. This year we said, “Sorry, folks, no fruit this year.” And several sent us money anyway and called it a non-fruit CSA. It took us weeks to understand what they were saying.

Author’s note: *Hanna explained that a neighbor sent money even though Threshold Farm had no fruit. She did it because the farm had helped her in the past. When Hanna said that she couldn’t accept it, that it didn’t feel right, the neighbor replied, “that’s your problem.” Hanna added that “...biodynamics opens this whole other side. Rudolf Steiner was very clear that you don’t pay the farmer for the produce, you pay for the work. Even if you have no produce, the work is still there.”*

HW: There is no difference between a high spiritual goal for the future and good biodynamic food. It is the same thing. I don’t see any difference between the working of the spiritual world and the working of these plants in nature.

Feldspar For Potassium Deficiencies

MB: *I understand at one point you decided to use potassium feldspar as your 501 prep to address potassium deficiencies. Can you tell us a little about that process?*

HW: It was an insight I had re-reading the lecture where Steiner mentions the potassium feldspar. I identified some of the cropping issues, such as biennial bearing, as a need to activate more of the living potassium on the farm. This is tied into the clay-humus complex of the farm’s soil. So I decided to grind some feldspar and make some 501 with it. We made two horns with it that year. Ironically, Manfred Klett² happened to be here that year and said they had done the same thing in Poland to help with the sandy soils. They had filled twenty horns of potassium feldspar 501.

MB: *Did you have the necessary minerals here on the farm?*

HW: I didn’t find any here, but it’s down there – just twenty feet down if you dig far enough. I found our source at an excavation site not far from here. But one of the horns I filled contained feldspar from Pike’s Peak in Colorado.

Thinning Fruit For Balance

HW: We’ve been interested in using 501 (horn silica) for thinning based on our ever-increasing knowledge of tree physiology and cropping patterns. We’ve used 501 for thinning at 10, 20, and 30 days out from bloom. It works in part because these are weak links in the way apples grow and mature. [Weak links refers to times of the year when young fruits are susceptible to thinning.]

HB: In 2015, we had so much fruit that we couldn’t thin it by hand. So we applied 501 at all three times. We felt the most

Fruit Thinning for Balance

In an orchardist’s world, the practice of fruit thinning is essential to ensuring annual, high-quality production. As fruit trees emerge from the wintry cold each spring, they are bathed in the warmth of the rising sun, triggering growth processes that lead up to the period known as bloom. Bloom is that annual process when the reproductive portions (e.g., pollen and stigma) of each flower mature, flowers open, pollination occurs, ovules are fertilized, and fruit growth commences. But if every successfully fertilized flower were allowed to become a fruit, then the developing fruits would compete with each other for water and nutrients, overload the tree with hormones reducing flower bud initiation for the following year, and result in weak tree growth, poor quality fruit, and biennial bearing. In other words, there would be no balance.

To help this situation, each orchardist needs to thin up to ninety percent of all developing fruit within forty-five days after fruit set to effect a healthy crop load. Depending on the number and size of trees each grower has, this can be a herculean task to attempt by hand, which is otherwise known as hand-thinning. Orchardists have few options besides this. Further, the sooner an orchardist can reduce an excessive crop load, the greater the impact for the orchard; so efforts at thinning need to be focused within a narrow timeframe.

Organic and biodynamic growers have considered many methods, too many to list here, to assist with the huge task of fruit thinning. Most have met with only limited success. In conventional agriculture, orchardists turn to synthetic chemicals to thin off the fruit. However, not only is the use of synthetic chemicals illegal in organic and biodynamic farming, they are anathema to established principles.

Hugh and Hanna of Threshold Farm have settled on the use of BD #501 (horn silica) for their fruit thinning assistance. As described in the interview, they feel that BD #501 applied 20 days-after-full-bloom (DAFB) gives the greatest effect. Additional applications can be made sooner (10 DAFB) and later (30 DAFB), depending on your starting crop load – although it remains to be seen what effect the other timings actually have, if any. Shortly after applying BD #501 in the morning, fruit begin to yellow, wither, and fall off the tree. Within a few weeks, they know the full effect of the applications. They augment the effects of BD #501 with hand-thinning, reducing the original number of fruit per tree by roughly ninety percent. A few months remain after thinning before apples are ready to pick, but the thinning process helps ensure the likelihood of a bountiful harvest, return bloom, and high-quality crops.

effective spray, the one that had immediate results, was 20 days after full bloom. Whether it was cumulative with the 10-day spray, I don't know. But a few hours after spraying, I saw a whole class size of apples turn yellow.

If you are going to use it once, we feel 20-day-after-full-bloom (DAFB) is the best timing. We don't have stressed trees. We have strong digestion going on in the soil – so it is holistic. We sprayed the 500 first, then the 501 for the first timing in the morning. The 500 was only sprayed once. If you spray it at the optimal time when you have excellent conditions and active soil biology, then you don't need to spray 500 again during the year. I learned that in Australia, and it has been confirmed. Equally, if you spray it when the ground is too dry or cold, you may be disappointed. [See sidebar for more information about thinning tree fruit.]

MB: *What do you feel it was about the timing that was so effective?*

HW: It was at a vulnerable point ... of the tree to abscise [drop] the fruit. I love 501. It is a powerful spray, and so I have always been hesitant. It has the greatest effects at two stages of plant growth. First, if you spray it on a young plant, the result is a nitrogenous effect that has to do with light assimilation – it all comes from light. The light assimilation is enhanced early in the season. The second stage is the ripening of the fruit before harvest. You enhance sugar formation in carrots, for example, by spraying with 501 just three weeks before harvest. So the answer to why 501 is so powerful has to do with light assimilation. Sprayed on a sunny day on stressed plants, it can be harmful.

MB: *Are you spraying 501 pre-harvest on apples?*

HW: You can color fruit but you also sunburn fruit prior to harvest. It might be a nice little test if you don't think fruit is ripening fast enough.

HB: We don't want to advance harvest too much because we can't pick the apples fast enough if they all ripen at the same time. You could use it tactically, especially on Idareds, if they aren't ripening properly because the sun isn't reaching the fruit at the center of the tree.

HW: The tree is preferentially providing potassium to fruit that is better exposed to light.

Valerian for Frost Protection

MB: *Climate change and particularly spring frosts have severely impacted many apple growers in the past few years. How do you view the use of valerian in general, as well as for frost control/damage recovery each spring?*

HW: We find valerian invaluable for frost control. For frost abatement in orchards at bloom time, we stir about a half-cup to one cup of preparation per twelve gallons of lukewarm water (100° F) in alternating vortices for fifteen minutes. We apply this as a fine mist, using the top two nozzles on our air blast sprayer the evening before an expected frost. We find this gives reliably about four or five degrees of protection, and has saved our crop about one year in two.

HB: I feel sure that the effectiveness of this spray depends on our general use of the other preparations in compost applied to the orchard and our yearly use of the 500 spray. To understand this fact, one need only think through the development of a well-humified soil that is the result of this program, together with the healthy, moderate growth of the trees. Then one can also come to appreciate Steiner's insights about the role of a healthy fungal life in the soil, particularly in the mycorrhizal associations that were not even known at the time of the agriculture course. Of particular relevance to management of [pathogenic] fungal problems in orchards are the oak bark and chamomile preparations, plus equisetum tea. It's not hocus-pocus. It's agronomic reality.

Farming – Conventional and Biodynamic

MB: *The thing most people – especially people new to biodynamics – have to get past is the perceived hocus-pocus. Some of the concepts are pretty deep.*

HW: You can look at a pinecone or a chamomile flower, and you can actually read the geocentric inscriptions of those planets. They are written right into the flowers.³ It's a matter of what you do with it. I let God do the heavy lifting. I see stuff all around, and I say it is all working. Conventional farms cut themselves off from the patterns that are all around.

All of nature begins to whisper its secrets to us through its sounds. Sounds that were previously incomprehensible to our soul now become the meaningful language of nature.

– Rudolf Steiner



HB: Conventional farming is so based on the dollar. If we actually looked at the dollar amount we spend or our profit, we probably wouldn't keep chickens. It's the intangible of having the chickens come and scratch around the base of the tree.

HW: Each spring, the chickens come out with us into the orchard and scratch around. By the time the trees start blooming, they've cultivated every square inch of the orchard. The leaves infected with apple scab disappear.

HB: To us, it is the quality of life. Some things you can't put a dollar sign on.

HW: We try to make everything profitable because we know that allows us to keep doing what we're doing. So we're not fools. We, as farmers, can be great with money without making a big deal out of it.

MB: *I've heard that you have worked with pepperering⁴ as a way to discourage certain pests on the farm.*

HW: Yes, it works fabulously, though we don't do enough of it. There's only so much time in the day.

HB: We have used pepperering for deer, voles, and plum curculio. Sometimes we only burn them and spread the

ash. To make the homeopathic dilution just takes too much time. It's just an extra thing. You need the will force to make the space for it.

Maximizing Water Resources With Keyline Design

MB: *In addition to traditional biodynamic practices, you also borrow from other approaches. I am thinking of your use of keyline plowing at Threshold Farm, especially since you are from Australia, and it was invented there by P.A. Yeoman. What is keyline?*

HW: Keylining is a method for engineering the way water flows across the farm to get the maximum benefit out of every precipitation event. It helps prolong the usefulness of every rain and shortens the negative effects of drought. It totally changes the way water moves over your farm. You can get similar benefits from intensive cattle management. Go to Yeoman's book, *Water for Every Farm*, to learn more. Mollison⁵ works on a more intimate scale, but acknowledges a debt to Yeoman.

Keylining is absolutely critical to what we do here. We have a keyline conservation drain that runs a half mile up

the hill. It brings runoff from all over the farm to the pond. Eventually, we will gradually align the forests off the keyline strips on the farm. Everything at Threshold Farm is done on keyline now, including our newly planted orchards. Anyone that isn't paying attention to how water is passing across their farmland isn't really paying attention at all.

We're going to get more and more Aussie style weather – long droughts followed by intense flooding. You've got to hold that water by creating rich, deep soil and ponds for water storage. So if your ground is built up properly and your trees have deep roots, you have a big sponge that will hold huge amounts of water. And that's your primary reservoir. Anytime you have a runoff event, then you need to store it in properly made keyline ponds. That's where we're going next on the entire farm. I've got it all blocked out, but it's a huge financial investment that needs to be paid off. If we had fifty million gallons up here, we'd make it pay in one season.

Conducting On-Farm Research and Doing The Work

HW: I think it is great for people to research. When I was in my twenties on Long Island, I used to experiment with the tree sprays. We farm agronomically now; we're practical farmers. And I think you can feel it up here at this farm. This is not like any other place, because it's an individualized farmscape.

MB: *What is a hard practice in biodynamics?*

HW: To me, if you love it, it's not work. If you can't affiliate with the farm, having preps available in the marketplace is a great thing. But why not have this intimate relationship with these forces from the start? If not, what is the point? Is the point to have cheaper, bigger apples and put your competitor out of business? Or is the point to have healthy human beings – spiritually, physically, and in every other way?

People need to have this primal experience, to be connected with the earth, to be connected with where their food comes from and with where their air comes from. We're breathing the benefits of places like this farm and its surrounding forest.

We find visitors want to know how all this works, how food is grown. If we talked about difficulty with them, we could say that weeding carrots is difficult. But it is also a symptom that we need more people involved in agriculture. We need more people in farming – not based on salaries but on primal need such as housing, healthy food, and good, healthy relationships.

We need more people in agriculture, so that when someone says biodynamics involves difficult processes, I can say, "well, yeah, but it involves a complete change in the civil and cultural reality too." That was really why I got into farming.

That was my motivation. We had the Vietnam War then and the early stages of food degradation. I wanted to see transformation. And I think we have seen transformation. Smart young people – that is the cultural transformation.

When I got started, it was me and about ten other people. Now we have thousands.

Do we think we're going to get away with the abuse of Nature? The Earth is shrugging. It is a work in progress. Now we have to go forward.

Notes

- 1) The practice of biodynamics assumes the use of all of the preparations as indicated by Rudolf Steiner in the Agriculture Course, and their use is required for biodynamic Demeter certification. At JPI, we recommend more frequent use of all nine of the preparations, as well as the Thun Barrel Compost and, on the North American continent, more frequent use of the two silica preparations, horn silica (BD #501) and *Equisetum arvense* (BD #508), to balance our increasingly extreme and dramatic weather conditions and to counter the life destructive forces so prevalent in the world today.

The sequential spray of all of the preparations is a good way to get all nine of them on the land in a concentrated time frame for weather/moisture balancing. For more information on the sequential spray and for kits, see the JPI website under Preparation Info. At www.jpibiodynamics.org or see *Applied Biodynamics*, Spring/Summer 2016, Issue No. 89.

- 2) Dr. Manfred Klett, biodynamic practitioner, was born in 1933 and co-founded Dottenfelder Hof, a biodynamic farming community in Germany in 1968. He is the former director of the Department of Agriculture at the Goetheanum in Dornach Switzerland and author of *Principles of Biodynamic Spray and Compost Preparations*.
- 3) Hugh is referring to Ernst Michael Kranich's book, *Planetary Influences on Plants*.

The above books and feldspar-based horn silica, BD #501(f) are available at JPI.

- 4) Peppering or pest ashing is a method of pest control indicated by Rudolf Steiner and researched by Maria Thun. Insects, weed seeds, rhizomes, or the skin of an animal is burned, and either the ash is spread on the land or a homeopathic dilution is made for spray. The type of pest and its relationship to the cosmos is taken into consideration in the timing of both burning and applying to the land.
- 5) Bill Mollison is referred to as the father of permaculture.

Transition, Hope, and Service to Community:

Reflections Upon 2016 at JPI

Pat Frazier, JPI Board President

Many reflections that entered into this message manifested themselves during the Holy Nights of 2016 to 2017. Responding to the quiet impulse of reflecting upon the year behind me and the year to come, with the grace of the cosmos as a guiding force, I turned my attention to Josephine Porter Institute for many of those days. Although a non-profit organization engaged in healing the earth at a deep level is often a microcosmic reflection of the macrocosm, at no time has this concept been so strong in consciousness as this past year for those of us at JPI. Also at no time in history like our present time has the Earth needed the steady, guiding impulse of the human heart to come forward, to be heard, and manifest itself solely for Earth's best interests. Similarly, at no time before has there been such a need for unity and brotherhood of the human heart. **The healing, restorative forces of the biodynamic preparations are needed now to profoundly alter our human course and help us courageously support our planetary home.**

Whether you are a farmer with thousands of acres or a rooftop gardener in a densely populated city, you can employ this healing heart force. And the impact of the preparations will be heard.

Transition

As many of you know, JPI moved from our home of twenty-eight years in Woolwine, Virginia, in June of 2013. The move was difficult, and yet it called out some of the best qualities of the human heart. Holding faith, persevering, remaining strong, and demonstrating unconditional love – these positive human qualities found in our profoundly devoted staff and volunteer board have guided our transition and made their way into the biodynamic preparations that many of you now use on your farms and gardens.



JPI farm in Floyd, Virginia

JPI now has a new home in Floyd, Virginia, in a quiet river valley nestled between two like-minded neighbors of similar strength and determination to heal the Earth – Spikenard Farm Honey Bee Sanctuary and Riverstone Organic Farm. Slowly and deliberately, JPI is developing a permanent home for the biodynamic preparations, but not in isolation. We are doing this in community with associative principles guiding our decisions, for the good of JPI, all our neighbors, and the biodynamic community at large. **We welcome your input and require your support as a community for this endeavor to succeed.**

During our many years in Woolwine, JPI developed a tentative financial stability that resembles very few similar non-profits. This was due to Hugh Courtney's tireless efforts to continue the legacy of Ehrenfried Pfeiffer and Josephine Porter's work. He dedicated JPI to making, applying, and spreading the knowledge of the preparations as widely as possible, following Rudolf Steiner's directions in his 1924 Agriculture Course (published most recently as *Agriculture: Spiritual Foundations for the Renewal of Agriculture*).

Biodynamic agriculture is now only seven years shy of its birth a century ago. As a result of tireless effort, many in our biodynamic community have taken up the work of making and distributing biodynamic preparations in their own local communities. New, healthy, regional groups are reaching out to their local communities, increasing the diversity of biodynamic preparations and helping to grow a grassroots effort holding a heart force for healing the Earth at a very different level than mainstream agriculture.

In this transitional period, JPI continues to be a steady hand and strong heart force **as the only non-profit with the mission of making, distributing, educating, and researching the biodynamic preparations.** Diversity in preparation availability is the desired and logical outcome of this tireless effort of the first years of JPI and all who contributed to its success. We are forever in gratitude for this outcome.

A different future of unity of purpose for the biodynamic preparations began with our move to Floyd. JPI's further development depends on the support of the biodynamic community as never before. When the biodynamic community, including our customers and other consumers, support JPI's work, they support **a non-profit organization whose mission is focused, community oriented, and non-commercial in its motivations.** Although developing

diversity in biodynamic preparations is a healthy, necessary response to the growth of the biodynamic movement, along with the growing knowledge base of preparation maker colleagues, a secondary outgrowth of this movement is that of entrepreneurial, for profit endeavors to create a diverse market. **Those endeavors are crucial to the success of diversity, certainly, but so is a community supported, non-profit motivated institution that can balance for-profit efforts.**

Taking this a step further, research-based non-profits such as JPI also help to support local food movements, biodynamic farming education, and the making and distributing of biodynamic preparations suited to individual bioregions. The outgrowth of such interactive efforts among different groups is strong, resilient, biodynamic communities.

Serving Community

In the past several years, JPI has served the biodynamic community in a number of ways that have helped further stabilize growth and increase attention to biodynamic preparation quality. Working with Demeter USA, the Biodynamic Association (BDA) and members of the Fellowship of Preparation Makers, JPI board members participated in a 1½ year process that culminated in publication of minimum standards for making, storing, and distributing the Steiner-inspired biodynamic preparations. In addition to this valuable work, JPI and other preparation makers have initiated the first peer reviewed certification process for the biodynamic preparations through Demeter USA this past summer. Through development of standards and subsequent initial implementation of certification, the biodynamic preparations commercially available either through non-profit or for-profit entities will adhere to a set of minimal standards drafted and supported by many major preparation makers in North America.

In addition, JPI has been instrumental in biodynamic preparation education efforts in the biodynamic community and beyond, touching the lives of over 10,000 people in a variety of ways.

- In February 2016, JPI was a major sponsor of the Fellowship of Preparation Makers Conference in Ukiah, California. In addition to financial support, JPI Board President Pat Frazier chaired the planning committee. The focus of the gathering was quality evaluation of BD #500, using sensory and picture forming methods.
- JPI Board President Pat Frazier was a member of the planning committee for the biennial national 2016 BDA



Burial of horn manure at BDA preconference workshop

conference held in Santa Fe, New Mexico. JPI also provided major sponsorship, an exhibit presence, and two conference presentations during the event. The conference was attended by more than 700 people, and had presenters of unmatched expertise from the North and South American continents. JPI is proud to have been involved at the organizational level in this event.

- In December, JPI attended the Acres USA conference in Omaha, Nebraska, as an exhibitor. JPI was the only representative of the biodynamic movement in attendance, filling a critical need for biodynamic education and outreach to the sustainable farming community.

Throughout the year, board members Bill McCranie, Chris Hammon, and Abby Porter have represented JPI at the Mother Earth News Fair, the regional Chesapeake Biodynamic Network, the Texas Organic Farmers Conference, and, most recently, at the Pennsylvania Association for Sustainable Agriculture's Farming for the Future Conference, again in our outreach and education capacity.

- Continuing to serve the community as volunteers, JPI board members have served on major committees of the Fellowship of Preparation Makers, an informal, dedicated group of biodynamic preparation makers whose mission is to assure that sufficient quantity of quality biodynamic preparations are available for North America.
- JPI's board members have been instrumental in the founding and development of such regional biodynamic

"...the making of the preparations is a spiritual task, which must be supported out of the economic realm, rather than a purely economic activity." – Hugh Courtney



Stirring barrel compost at Biodynamic Association preconference workshop

groups as the Chesapeake Biodynamic Network, the Western and Central Colorado Regional Biodynamic Groups, and the newly forming New Mexico Biodynamic Regional Group.

Research Commitment

JPI has invited Bruno Follador of the Nature Institute's Living Soils Project to the JPI farm twice to provide education and consultation on biodynamic composting and quality evaluation for biodynamic preparations. Bruno's last visit, in October 2016, was our second opportunity to have our preparations and soils tested using chromatography, conventional soil testing, and soil web microbiology. We did this to ascertain baseline data as we begin development of our farm organism. This informal research effort is a unique commitment by a non-profit organization to assume the financial burden of stewarding not only our land but also researching its developing qualities, using a variety of assessments. We hope that other biodynamic farms, preparation makers, and regional groups may replicate similar innovative models of quality evaluation in the field. The results will be available later this year.

Hope for the Future

In researching information for this piece on reflection, I turned to the past impressions of founder Hugh Courtney regarding the transitions JPI has undergone through the years. A similar tone calling for unity and support from the biodynamic community emerged in his impressions. Not only did he see the necessity of a home for the preparations that would be dedicated to their making, distribution, education, and research, but he also was clear to point out "the making of the preparations is a spiritual task, which must be supported out of the economic realm, rather than a purely economic activity" (*Applied Biodynamics*, Winter 2000–2001, Issue No. 31). This issue similarly reflected a transition time for JPI, when Hugh asked for input from the biodynamic community in light of his decision to retire. (Thankfully, Hugh is still going strong at 85!!) The questions posed to the community then have not changed appreciably in seventeen years. Curious.

Now is the time for large scale biodynamic community commitment to support the home of preparation work, provided by JPI as a non-profit organization, dedicated to the mission of making, distributing, educating, and researching the preparations, couched in the economic realm but without economic motivation.

Now also is the time to develop a transparent assessment of the face of community support for an organization that has been willing to take responsibility for its mission for more than three decades, while also enduring and transforming alongside our beloved and vital biodynamic community. **Education and research into the field application and quality evaluation of preparations cannot be supported by sales of preparations alone.** Articulating this research for the new biodynamic marketplace is vital to its growth. Such



Pat Frazier at the JPI booth at ACRES USA conference

information also belongs in the realm of objectivity and solid, new thought forms of scientific methodology, a stance best accomplished by a well recognized and supported non-profit.

During the last year, JPI received financial and material support from our sister organizations, the Biodynamic Association and Demeter USA, as well as other private donors who recognize the value of a non-profit organization continuing to provide quality preparations, as well

as educational leadership of preparation making, application, storage, and distribution; in addition to innovative research and devotion to consultation to help both biodynamic newcomers and experienced practitioners. We at JPI are grateful for this organizational support, the support of our customer base, the growing biodynamic farming community, and the Anthroposophic community.

Heartfelt wishes for a vibrant and abundant 2017.

JPI Board of Directors News

Pat Frazier

The board of directors met for their annual retreat in Floyd, Virginia, in October 2016. In attendance were Pat Frazier (president), Joey Brinkley (vice president), Chris Hammon (secretary), Bill McCranie, Abby Porter, and consultant Pamela Sophiajohn. When nominated for an additional board term of three years, Abby Porter declined, having already completed five years of service to the JPI board. The current officers were reelected.

At this time, the board would like to thank Abby not only for her service during the past five years but also for her invaluable historical guidance as the only daughter of the JPI's founding inspiration, Josephine Porter. Abby has worked tirelessly on many fronts during her board tenure. She reaffirmed our confirmatory agreement as the designated proprietary owner of the Pfeiffer BD Compost Starter and the Pfeiffer BD Field and Garden Spray from Maria Linder, former representative of the Pfeiffer Foundation, when the designation was transferred. She remains on the staff of the JPI periodical, *Applied Biodynamics*, contributing both editorial and creative expertise to the only journal in the United States dedicated to the research, education, and application of the biodynamic preparations.

Her experience on non-profit boards with educational missions has informed our work as a non-profit dedicated to the mission of distribution, education and research of the biodynamic preparations. Her deep connections in the biodynamic community by virtue of her lineage also assisted us immeasurably in our communications with sister organizations. Furthermore, as a maker and direct marketer of fine jewelry, she has provided us with invaluable creativity and extensive experience, helping us to refine and improve our educational presentations at conferences and in trade show booths across the country wherever JPI was represented. Thanks in large part to Abby, JPI has been included in Acres USA, the national BDA Conference, Mother Earth News Fair, Pennsylvania Association for Sustainable Agriculture and the Fellowship of Preparation Makers conferences.



Abby Porter representing JPI at the recent PASA Conference

During Abby's tenure on the board, she also organized several of our biannual spring and fall workshops, assisted in the educational development of the Chesapeake Biodynamic Network (CBDN) and initiated a research project using two different soil and compost testing methods, along with chromatography, to assess the health of the soil and preparations taken from the new JPI farm.

Abby will continue to contribute to the biodynamic community in many valuable ways through her involvement with CBDN, as co-editor of *Applied Biodynamics*, and as a trusted advisor to JPI for many years to come. She will be missed on the board and by the JPI staff, but will continue to be a strong presence as we work to support the healing of the Earth. Best wishes to you, Abby.

History, Impact, and Fate of Skyline Organic Farm in Topanga Canyon: A Conversation with Stefan Hagopian

Karen Moneymaker

As my first contribution to the JPI team, I spoke with Dr. Stefan Hagopian, DO, who owns Skyline Organic Farms, a Demeter certified property in Topanga Canyon, California. Dr. Hagopian purchased the property with his former wife, Kathryn, in 1991. They were guided by Jack McAndrew, beginning in 1992, and also by Alan York from 1999, among other experts in biodynamic farming. They first sought – and were awarded – Demeter certification in 2005.

Since 2009, Stefan and the farm have been locked in a losing battle with the California Coastal Commission (CCC). Following a neighbor's complaint, the CCC has spent the past eight years flexing its muscles. Because of this, Stefan has been forced to remove all livestock from the property, cease farming operations, and start the process of converting the land back to a pre-1900s state that had not been present there in any records of the present or recent past-century. Only after this process has been completed to CCC's satisfaction, then monitored by a CCC-approved biologist for five years, will Stefan be able to sell his land and start anew elsewhere.

Despite this forced change to his property, Stefan was incredibly open, discussing the birth and development of Skyline Organic Farms, as well as his thoughts on the current state and future of organic and biodynamic agriculture.

Karen Moneymaker (KM): *When and how did you discover biodynamic farming practices? And what was the impetus/motivation to start applying biodynamics on your property?*

Stefan Hagopian (SH): After moving west from New England, where we [Stefan and his former wife] were both trained as osteopaths, there was a bit of a learning curve in growing anything in Southern California – totally different climate, soils, water and native habitat. Wanting to raise some of our own food, we had purchased a home in 1991 in an agriculturally zoned part of Los Angeles County where the properties were all roughly five- to forty-acre parcels. It was in one of those less expensive fire-brush zones so famous in southern California.

Most of our land had been repeatedly cleared, graded, burned, and/or eroded – such that there was very little topsoil in most places near the house. So we hired a gardening/farming consultant named Janie Malloy who, when she gave us options for compost, told us that the gold standard was “biodynamic” compost being made and sold by a guy named Jack McAndrew. The idea of buying dirt sounded crazy to me (and his dirt was expensive) because I had mainly heard of buying sacks of manures or fertilizers,

and/or making your own compost. I had actually grown up with a dad who made us make compost every year at our property in Massachusetts. Where I grew up, which was typical for anyone who had a backyard garden in New England, we would rake leaves and mow lawns and save the kitchen scraps, eggshells, and whatnot. Everyone had a compost pile – if they were serious about gardening – not if they had a few tomato plants, but anyone with a substantial backyard garden.

But Janie insisted that Jack's compost made a big difference. Since we both had research backgrounds, my wife and I decided to do an experiment. We planted six identical fruit trees in three different ways in the basalt bedrock that required some digging and some amendment. Each pair of tree holes had 50 percent native basalt soil mixed in three different ways, with each pair of trees planted separately as follows:

- Two trees were planted in holes with certified organic compost sacks from a nursery mixed into the hole 50/50 with the native soil.
- Two trees were planted with steer manure and our own organic compost from our home compost pile, also mixed 50/50 with the native soil.
- Two trees were planted with Jack's biodynamic compost, again mixed 50/50.

The results within eighteen months were astounding. The two trees planted with Jack's biodynamic compost were so much healthier, vigorous, and productive, and the fruit's taste, color, and keeping ability were superior as well. We were not so attuned to measures like vitality back then, but I can tell you that now, twenty-five years later, only those two trees originally planted in biodynamic compost survived more than six years, and they are still healthy!

We were both on board after that observation, and many others that followed, watching nature at work in a garden that grew slowly into a nine-acre biodynamic farm within twenty-seven acres of mostly native habitat that we kept as a buffer. Jack taught us the intricacies of biodynamic compost making, use of preps, weed and pest cooperative measures, and the uses of the calendar. And at the same time, he introduced us to master biodynamic teacher and viticulturist Alan York. Whatever Jack couldn't explain from his heart and mind, Alan could explain with science or a practical demonstration. And they both could back it up with references to Steiner's teachings and their own decades of farming experience.

KM: *What were the first steps you took in your conversion to biodynamics?*

SH: Compost making was really the key for us because the native topsoil is very thin on our dry, sloping, previously carved terrain, and the sandy soils beneath also could not hold much water. We watched in amazement how a little compost, properly made and applied, would kick off a process whereby the soils, now full of deep healthy roots, became like a sponge that would hold onto winter rain water enough that many trees and vines needed little to no irrigation at full maturity. That being said, you have to plant the right crop; you can't do that with blood oranges whose root system only goes down eighteen inches, but mulberries, loquats, sapotes, carobs, all kinds of native types of plants do really well if you plant things native to the Mediterranean climate that we have here.

The previous land use was limited to speculating builders who never completed much, and also some horse riding and grazing, so we never had to deal with chemical contamination.

KM: *That's amazing. Our mutual friend, Chef Jordan Kahn, mentioned that the first time he came to the property, there were things growing there he had never seen before. What do you grow and how do you choose what to grow?*

SH: One thing that helped guide choice of plants was the neighborhood history. Within this little canyon, lower elevation land was too cool for some things, but higher ground was fine and some neighbors grew avocado and other sub-tropicals native to the southern California climate. Being five miles inland – eight miles driving – provides a rare moderate Mediterranean climate, which happens to be the singular native habitat growing more edible food species for people than all other climates on earth, including the tropics that harbor more species diversity but not more edible species!

Most people, even great chefs, never see some of what can grow here because it may not transport or store very easily – or has simply not been used in culinary applications yet.

Besides the neighborhood guidance, remember we are natural researchers, so we did the Noah's Ark thing and planted two of everything we could find that was edible and under-represented in the markets. No sense competing with the large-scale industrial producers whose retail prices were less than my harvesting costs. And so far I have never really been able to make a sustainable living by farming organic and biodynamic, certified or not.

Unfortunately the market for "organic" was rapidly being industrialized and saturated. It has been sad to watch, as I complained ten years ago to a friend whose father had

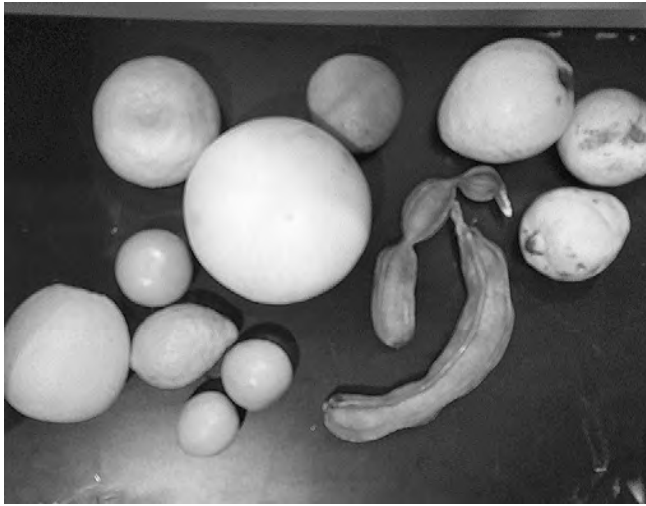


Dr. Stefan Hagopian of Skyline Organic Farms, located in Topanga Canyon, Los Angeles, CA

been instrumental in the new "National Organic Program." He was so positive that great things would come when loosening the standard, because it would allow the larger producers to go organic and make more "organic" available to the public at lower cost.

Today when I am in a similar conversation I begin by reporting my experience as a farmer, both before and after that program took effect. I report what nobody seems to realize – that there are now hundreds of chemicals that could not be used previously on organic farms, but are now "certified organic" – without the ingredients changing. In other words, all they did was gain "organic certification" by virtue of applying for certification during this time of a weaker standard. And although the consumer now has more organic products available at lower cost, they are getting a quality and cleanliness that is worse than the non-certified produce available from everybody's local family farmer in the mid-1900s.

So one way to compensate for the plundering of organic food prices was to grow a little more of one of the experiments that grew easily and without irrigation: Bordeaux variety wine grapes. We had tried table grapes and



An assortment of fruits from Dr. Hagopian's farm including blood orange, guava, and Inga edulis (known as ice cream bean).

other wine grapes grown in cooler (Burgundy) or warmer (Rhône) climates, but none grew as easily or better than Cabernet Sauvignon, Merlot, Cabernet Franc and Malbec. Many years after that finding, we learned that bordering our property was the old Mezet Ranch & Winery, which sold apple juice and boasted the oldest commercial vineyard in Topanga Canyon – established one hundred years ago – and they were growing Cabernet and Merlot. It was an interesting validation of our research effort.

Other things that we grew that are unique are some of the many types of native American fruit-producing plants that just don't ship well, so people don't tend to see them at markets: sapote, cherimoya, unusual varieties of berries and avocados, and other Mediterranean plants, like some of the lesser-known varieties of fig, mulberry, low-acid and seedless pomegranates, loquat, and carob, and then other sub-tropicals like rose apple, warm climate cherries, and the African Zulu fruit known as kei apple.

KM: *Was the intention to go to market?*

SH: Not in the beginning, no. When we started out, we only intended to grow for our family. But here we were, with nine acres and a great twelve-month growing season and able to grow so many more different things that pretty soon I'm growing things that my friends and neighbors wanted and that the local restaurants (such as The Inn Of The Seventh Ray, here in Topanga) wanted. And pretty soon I'm supplying restaurants down in Venice and Santa Monica with oddball things that I was growing. It was great. I wasn't just supplying them with some fluky thing that had no shipping ability so they couldn't get it from their wholesaler. No, I was supplying them with a quality product that wasn't just a little bit better, because it was just fresh and local, but of a massive quality difference.

Around 2004 when the wine was coming out so good and the fruit trees were reaching maturity and producing fruits that were so much better than anything on the market, everyone wanted in. We made fruit baskets and boxes, and we had children from the local pre-school and the local Waldorf school come up frequently to see what a real farm looked like, chase a chicken around, and pick up an egg that was still warm. These results begged for us to get things to market, to get these products to a wider audience of people who appreciate quality and vitality in their food. So we started going to a farmers market in 2009. And just as we started doing that, we had our first visit from the CCC.

KM: *Where did you source your preps? Do you make your own preps now?*

SH: In the beginning we bought our preps from biodynamic groups in Northern California, Oregon, and, of course, from JPI – I still buy from JPI. Then later we made some of our own preps, but had to stop doing so when the California Coastal Commission ordered us to “cease and desist,” with their extremely liberal definition of what constitutes “grading.” It's difficult to do much farming without occasionally digging a hole (try burying cow horns without digging a hole). And it may sound generous to offer permits for farming some day, but that will be cost- and time-prohibitive in the small-scale farming world.

So who is going to be able to afford that? Someone with a corporate compliance department, a government affairs department, a legal department – what are we sounding like?

KM: *A corporation... To say it's heartbreaking sounds trite, but you are in the process of losing something that you shouldn't be losing, for reasons you shouldn't be losing it.*

SH: I don't know how anyone expects to see an alternative to industrial-scale, chemical-heavy, or pseudo-organic food unless there are government allowances and encouragement for exactly what we are now prohibited from doing. That's where it starts to fall apart, when you have entities so large and unwieldy that the human heart and the human mind has almost no role, that's when we lose.¹

Note

- 1) In spite of the challenging circumstances under which Dr. Hagopian has practiced biodynamic agriculture, he shared that he remains enthusiastic about starting fresh on a new property where he can use his twenty-five years of experience from the beginning to work with the farm organism.

Spring and Summer Use of the Biodynamic Preparations

Abigail Porter

Timing your use of the preparations listed below depends on weather conditions and the latitude of your geographic area. They are given in the order of seasonal application rather than monthly time frames since a wide variety of climatic conditions exist across the country. Also, our increasingly unpredictable, shifting weather patterns have forced us to be flexible with our usual scheduling. The suggestions provided are meant to guide your applications, based on your own observations and activities. Using the preparations on specific days as indicated in the biodynamic planting calendar can enhance the vitality and keeping quality of each particular crop, be it root, leaf, flower, or fruit. It is best to avoid black out days indicated in the calendar, which are either times of transition or times that lack beneficial influence.

Pruning Fruit Trees and Using BD Tree Paste

Fruiting trees, shrubs and vines are usually pruned in late winter to early spring after the last hard freeze but before major sap flow and bud break. Trees are best pruned during fruit/fire days when the moon is descending – when the arc the moon travels across the night sky becomes increasingly closer to the horizon over a fourteen-day period. This corresponds to the “transplanting” time in the *Maria Thun Biodynamic Planting Calendar* and is designated by horizontal moon crescents in the *Stella Natura* and other planting calendars. During this period, the sap flows are more downward or earthly directed, resulting in less sap loss from pruning wounds, and better absorption of tree paste. BD Tree Paste is especially helpful in healing wounds from pruning and any other injury, such as hail or wind damage, that the tree might have sustained during the winter. The trunk and main branches, or even the whole tree may be painted or sprayed with the tree paste to improve overall health. Used as a root dip, tree paste strengthens tree and perennial plantings and gives them a good start.

Barrel Compost (BC), Pfeiffer BD Field and Garden Spray (Pf F&G)

Barrel Compost or the Pfeiffer Field and Garden Spray can be used when you turn in fall planted cover crops, apply compost, or prepare beds for seeding. Either may also be sprayed in stable areas, and over and into compost piles to hasten decomposition and humus forming processes. They can also be used as a seed bath or spray just prior to seeding. Both sprays are especially beneficial if you lack an adequate supply of biodynamic compost. They are sprayed on the earth in the late afternoon or evening as the earth is breathing in. Either



Applying BD tree paste

preparation can also be used as a soil drench or as a foliar spray throughout the season to strengthen stressed plants. If you are just starting to practice biodynamics, it is recommended that you apply the compost preparations on the land first to enhance the effectiveness of the other preparations. This can be in the form of biodynamic compost, BC, or the Pfeiffer Field and Garden Spray.

BD #500 (horn manure)

Horn manure is used in spring to enhance warmth and stimulate microorganism activity in the soil. It stimulates seed germination, root growth and humus formation. Horn manure is used when seeding and transplanting; in pastures and orchard floors; and as a seed bath. It is used on grasslands or hayfields after grazing or mowing to stimulate re-growth, and can be used in the garden to improve re-

growth of leafy crops like chard or spinach when making multiple cuttings. It has also been used when plants have been defoliated by insects or hail. As with the above preps, it is best applied later in the day. The Pfeiffer Field and Garden spray contains horn manure, in addition to all of the compost preparations, and may be used in place of BD #500.

BD #507 Valerian

The valerian preparation provides warmth, and is used to protect early blooming fruits from frosts. It is sprayed on the trees or plants in the evening before the expected frost. For heavy frosts, it may be applied again early the following morning before the frost melts. It is also used for mild frost protection on early plantings in the garden, in winter greenhouses, and, in the fall, to protect from early frosts.

BD #508 *Equisetum arvense*

Equisetum is commonly known as horsetail and is a very rich source of plant silica. Either fresh or fermented tea is used to strengthen plants' resistance to fungal diseases like powdery mildew; to bring balance when conditions are too watery; and to bring a gentler form of the photosynthesis impulse of the mineral silica BD #501 to plants at any time of the year.

The diluted fermented version can be used in the tree paste as the liquid portion of the mixture. It can also be sprayed on the soil in addition to or along with the early applications of BC, BD #500, or Pfeiffer BD Field and Garden Spray to bring the silica impulse to the soil early in the season. The fresh tea is sprayed directly on plants, and the diluted fermented tea is applied to the soil, usually in the evening. Several applications can be made throughout the growing season in times of plant stress and disease, and to balance drought conditions.

BD #501 (horn silica)

The horn silica preparation is used during the growing season to enhance photosynthesis, regulate leaf growth, and help the plant be more resistant to insect and fungal damage. It is used after BD #500, (horn manure) has been used and when roots are firmly established. In the case of transplants, that would be minimally a week or two after they have been transplanted using BD #500. For annual seeds planted directly in the bed, BD #501 should not be used until at least after the second true leaves have appeared. It is used after blossoming on fruiting trees and plants to stimulate ripening and to enhance flavor and storage quality. For fruiting crops like tomatoes that are blooming and fruiting simultaneously, it is used after the first small fruits have appeared.

For difficult germinators such as carrots or parsnips, BD #501 may be sprayed over the seedbed in the evening to

Taking Cuttings for Grafting

According to Maria Thun's research, the best time for cutting scions for grafting or rooting is "during ascending Moon – always choosing times (Fruit, Leaf, etc.) according to the part of plant to be enhanced." There is more upward pressure of sap flow during the fourteen-day period when the moon is *ascending* and making a progressively higher arc in the night sky. This is also the best time to graft the cuttings onto rootstock.

The period of *descending* moon in October and November, after leaves have fallen, is recommended for planting trees and bushes for the best results. Again, use the planning calendar days related to the part of the plant (fruit, flower, leaf, or root) to be strengthened.

REFERENCES:

Thun, Maria, *Gardening for Life: The Biodynamic Way*
Thun, Matthias, *The 2017 North American Maria Thun Biodynamic Calendar*

enhance quicker germination, or seeds may be sprayed and allowed to sit in a closed glass container for twenty-four hours in the dark before planting.

In the orchard, newly planted fruit trees benefit from soil sprays of BD #500, BC, and Pfeiffer Field and Garden Spray until the roots are well developed, *before* beginning to spray BD #501 at the fruiting age of about two years. Other perennials also benefit if stronger root growth is encouraged for a year before applying the BD #501, especially in hot, dry climates.

Horn silica is sprayed out at dawn in a very fine mist around and above the plants before the sun reaches their leaves. It should not be used on stressed plants or trees, or in hot, droughty conditions. If, however, there are prolonged periods of moisture and lack of sun, plants will benefit greatly from both BD #501 and BD #508. During the winter, BD #501 can be used as a ground spray to add light impulses to the crystallized earth.

Sequential Spray For Balancing Moisture

All nine of the biodynamic preparations are sprayed in sequence over two to three consecutive leaf/water days when prolonged dryness and drought prevail. Conversely, when there is too much rain and a lack of warmth and sun, the spraying is done on consecutive fruit/fire or flower/air days to bring balance. Sequential spraying is also a good way to get all of the preparations out in a short time frame at the beginning of the season to lay a foundation for the use of other preps throughout the season.

Root/earth days might be the best choice at the beginning of the season unless your area has had a dry winter and spring or is prone to routine summer droughts. Then spraying on leaf/water days may be more beneficial. Likewise, if your geographic area is routinely moist, cool, and lacking sun, spraying on fruit/fire days may be more appropriate. For more information on sequential spraying, see *Applied Biodynamics* back issues 89, 25, and 6.

Compost Preparations and Pfeiffer BD Compost Starter

Compost made from spring into summer is applied in the fall and worked into the top three to four inches of soil to receive the benefit of the winter forces. Small amounts of Pfeiffer Compost Starter mixed with water may be used to moisten and treat the compost layers if you are building your pile over time. This starts the decomposition process in a beneficial direction before you complete the pile. The warmth of your bioregion determines when you need to

stop adding new materials to allow for transformation before applying the compost to the soil during the fall. Once the pile is completed, a set of the six compost preparations is applied – five are inserted into holes around the pile and the sixth, valerian, is sprayed over the pile. Compost made and treated in the fall can be used the following spring and summer when replanting beds and to side dress heavy feeders. For backyard gardeners making small four-foot-by-four-foot piles, the Pfeiffer BD Compost Starter is economical because one unit may be divided in half, and special storage is not required for the remainder.

More detailed information on the use of all of the preparations, the sequential spray, and tree paste, as well as directions for *making* compost, the fermented horsetail tea and tree paste are available free on the JPI website under “Preparation Info” (<https://jpibiodynamics.org/preparation-info/bd-prep-instructions-articles/>). Kits for the Sequential Spray and for making Barrel Compost are available from our online store.

Introducing Beginner Pfeiffer Associative Contract for One Acre or Less

This year we are introducing a Beginner Pfeiffer Associative Contract for one acre or less with a 10 % discount with payment by March 31. This contract includes the easy-to-use Pfeiffer Biodynamic (BD) Compost Starter and the Pfeiffer Biodynamic (BD) Field and Garden Spray, which are especially suitable for backyard gardeners. The Pfeiffer products, developed by Dr. Pfeiffer, contain all of the biodynamic compost preparations (BD #502–BD #507), horn manure (BD #500), and a concentrated mixture of cultivated strains of beneficial soil bacteria, enzymes, fungi, and plant growth promoting factors.

One unit of the Compost Starter will treat up to 1½ tons of material (a pile approximately 4 feet wide by 8 feet long by 4 to 5 feet tall) and a unit may be divided in half for a 4-foot by 4-foot pile. One unit of the Field and Garden Spray will treat up to an acre, and portions of the unit may be used for smaller plots. The contract also includes pre-potentized BD #501 (5x) horn silica requiring only twenty minutes of stirring, and BD #508 (*Equisetum arvense*/Horsetail herb). Contracts may be customized with substitutions or additional preparations with the fee adjusted accordingly.

As a bonus, we are including a **free** introductory subscription to our periodical, *Applied Biodynamics*, as a downloadable pdf. *Applied Biodynamics* contains helpful information on the practice of biodynamics, the seasonal use of the preparations, helpful tips, how to make the preparations, event announcements, sharing of regional activities, and more.

Benefits of the Pfeiffer Associative Contract:

- Shelf life of one year with no special storage requirements beyond storing in a dark, cool place away from electrical fields.
- Single units of the Pfeiffer products may be divided for use on smaller areas, making it more economical.
- Pfeiffer products do not require stirring.
- **Free** one-year trial subscription to *Applied Biodynamics* as a pdf.
- 10% discount on any other biodynamic preparations ordered throughout the year.
- Savings on shipping by combining spring and fall preparations.

Pfeiffer Associative Contract for one acre includes:

- Two units of Pfeiffer BD Compost Starter.
- Two units of Pfeiffer BD Field and Garden Spray.
- Two units of BD #501 (5x) Horn Silica pre-potentized.
- Two units of BD #508 *Equisetum arvense*/horsetail herb.
- Free pdf subscription to *Applied Biodynamics*.

The fee for Pfeiffer Associative Contract is \$88.00 including shipping (\$107 value). The preparations will be sent in one shipment to save mailing costs since they have a shelf life and do not have special storage requirements. We encourage you to order one of our planting calendars when signing up for your Associative Contract.

Pfeiffer associative contracts are also available for larger acreage with the same discount as the standard associative

contract: 10% discount for one to two acres, 15% discount for three to four acres, and 20% discount for five or more acres.

For the downloadable contract and more information, please visit <https://jpibiodynamics.org/associative-contracts/>

The associative contract must be mailed in or faxed. You may also contact the office for more details and to sign up. Larger farm operations, market gardeners, or growers with special needs can anticipate a contract with JPI that will meet both their preparation and financial requirements. Contact JPI for an associative contract plan to meet your needs.

Reminders

Associative Contracts are due March 31 for discount. For more information and to access contract, go to: www.jpibiodynamics.org/associative-contracts/

Time to renew *Applied Biodynamics*. Annual subscription is \$30.00 (print) or \$20.00 (pdf): www.jpibiodynamics.org/applied-biodynamics-jpi-periodical/

JPI Search for New Executive Leadership

The Board of Directors of the Josephine Porter Institute for Applied Biodynamics (JPI) is pleased to announce that they have launched a search in January 2017 to provide the Institute with a new Executive Director. The search will remain open until new leadership is hired.

About JPI

Since 2013, JPI has been without an Executive Director. Nonetheless, with the help of dedicated staff members and the volunteer efforts of the JPI Board, the Institute has continued to provide vital services to the biodynamic community. With customers located in forty-eight states of the union and ten U.S. territories and Canadian provinces, the Institute produced and sold almost 100,000 units of biodynamic preparations to over 2,500 practitioners of regenerative agriculture in the past three years alone. JPI also plays an active role in the development of regional preparation activities and community building through outreach education and networking with national organizations such as the Biodynamic Association, Demeter USA, and The Fellowship of Preparation-Makers.

At this time, the JPI annual budget is under \$250,000 a year. We have four staff members and contracted support for bookkeeping, the JPI periodical, website and email communications, and fundraising. However, JPI now requires new executive leadership in order to sustain her continued vitality as well as grow her capacity to serve the needs of the growing biodynamic movement.

Position Summary

The Executive Director ensures that the day-to-day operations of our office, farm, and preparation making facilities are properly overseen and nurtured in alignment with JPI's mission, vision, and guiding service principles. (*For details, visit www.jpibiodynamics.com/about/mission.*) Programmatic responsibilities include supervision and oversight of biodynamic preparation production and distribution, the JPI farm, and biodynamic preparation education and research.

Responsibilities related to administration and general operating activities include fiscal management, fundraising, communications, and business development.

The JPI Board of Directors has identified three key projects that are vital to the future of the Institute as a national headquarters for biodynamic preparations –

- 1) Development of our recently purchased twenty-five-acre property into a Demeter certified farm organism;
- 2) Development and implementation of an improved distribution plan for preparations; and
- 3) Active participation in growing a vibrant network of national, regional, and local relationships for the shared purpose of strengthening the biodynamic community and the practice of biodynamic preparation-making

Working with the support and guidance of the Board of Directors, new executive leadership will provide the passion, commitment, and abilities for leading JPI in the development and implementation of a five-year strategic plan focused on these three critical goals.

Reports To

JPI executive leadership reports to the President of the JPI Board of Directors.

Ideal Qualifications, Experience, and Leadership Style:

- Minimum education of a bachelor's degree;
- A commitment to JPI's mission and vision, supported by a strong level of respect for biodynamic preparation making as a craft and spiritual practice;
- Ability to travel as a representative of JPI at least 20 percent of the time;
- Preferred farming experience with biodynamic preparations and regenerative agricultural practices;
- Leadership or management experience with for-profit businesses, non-profit organizations, or entrepreneurial initiatives;

- Strong organizational abilities including a capacity for setting and achieving strategic goals, budget management, and creative problem-solving;
- Strong written, verbal, and online communication skills;
- Basic knowledge of non-profit fundraising and marketing strategies;
- An approachable leadership style that treats everyone with humility, interest, and respect;
- Good at sharing the “big picture” with employees so that they can connect the dots between their job and organization goals, and JPI’s organizational culture that exemplifies a deep love and respect for the healing work of biodynamic preparations;
- Solid experience in community networking and the capacity to build effective collaborations with diverse groups and influential individuals; and
- Self-knowledge related to level of confidence and the ability to recognize limits, handle risks, and ask for help when needed.

Locations

JPI’s storefront office is located in Floyd, Virginia, a small rural town that offers a vibrant, eco-friendly community. And our twenty-five-acre farm with preparation-making facilities is headquartered approximately ten miles east of town in the foothills of the Blue Ridge Mountains and along the headwaters of Little River, nestled between our environmentally conscious neighbors, Spikenard Farm Honeybee Sanctuary and Riverstone Organic Farm.

Call for Board Members

The JPI Board of Directors is seeking members interested in serving JPI’s mission of distribution, education and research of the biodynamic preparations. Board terms are three years in length, with a term limit of two consecutive terms. Members commit to approximately five to ten hours per month while serving on the board. Board meetings occur monthly and are conducted by conference call. An annual in-person meeting in Floyd, Virginia, at the JPI headquarters is also required. Expertise in preparation making is not a critical qualification for membership but is certainly valued. Experience in non-profit board membership in similar organizations or in biodynamic or regenerative agriculture is preferred. Please contact JPI at communications@jpibiodynamics.com, using “Board Membership” as the subject line, if you are interested in serving.

Compensation

The Executive Director is an exempt position requiring on-site management. We strive to offer living wages that are commensurate with professional experience and responsibilities. Full-time employees receive twelve paid holidays as well as twelve vacation days per year. Health insurance and retirement benefits will be negotiated at six-month performance review. Relocation expenses are negotiable.

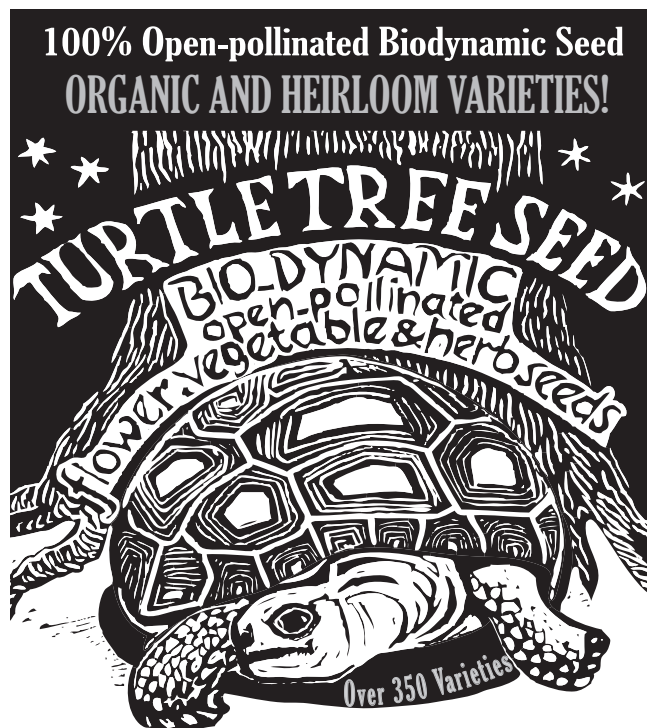
Job Description

Available to download at <https://jpibiodynamics.org/about/employment-opportunities/>

Application Process

If you have questions, email JPI Board President Pat Frazier at communications@jpibiodynamics.org, using “New Executive Leadership” as the subject line. To apply for the position, please use the same email address and subject line as shown above to send the following information:

- Cover letter;
- Resume; and
- Three references that include name, title, phone, email, and brief description of your professional relationship with your references.



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Save the Date

March through August – Online learning

Take your biodynamic skills to a new level by registering for the 2017 Biodynamic Association's webinars. First session of the season is an introduction to biodynamic beekeeping on March 16, followed by a webinar on a different topic every month through August. Find out more at <https://www.biodynamics.com/webinars>.

September 28–30: Biodynamic Principles and Practice

Understanding and making the biodynamic preparations for beginners as well as experienced farmers. Includes making six preparations: barrel compost, horn manure, chamomile, nettle, oak bark, and dandelion, as well as making compost. Gunther Hauk shares his 40 years of experience at Spikenard Farm Honeybee Sanctuary, Floyd, Virginia. For more information visit www.spikenardfarm.org.

For more listings of biodynamic classes, workshops and events around the country, see the Biodynamic Association's calendar at www.biodynamics.com/calendar.

ONGOING

Chesapeake Biodynamic Network (CBDN), College Park, MD

Meetings, networking, *Agriculture Course* study and biodynamic workshops held monthly on Saturdays at the Christian Community Garden Grounds next to the University of Maryland at 4221 Metzerott Rd in College Park, MD. Contact Michael Judge for the schedule at mjudge2000@gmail.com.

Spikenard Farm Honeybee Sanctuary, Floyd, VA

Classes in sustainable beekeeping and biodynamics. Apprenticeship/internship opportunities. For further information, please visit www.spikenardfarm.org.

The Triangle Biodynamic Network, Hillsborough, NC

Biodynamic lecture study, stir and sprays, and gathering to exchange ideas and projects. Second Saturday of the month. Contact: Jon Lyerly: Jelyerly2@gmail.com

White Rose Farm, Taneytown, MD

Educational food and farm events, festivals, celebrations and biodynamic farm days. For complete details, please visit www.whiterosefarm.com.

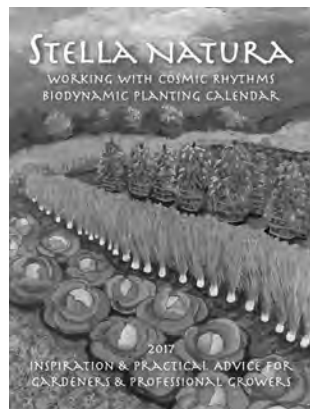
JPI Recommends Biodynamic Calendars

Stella Natura 2017 Biodynamic Planting Calendar

Edited by Sherry Wildfeuer – \$16.95

2017 North American Maria Thun Biodynamic Calendar

\$13.95



2017 Celestial Planting Calendar

\$20.00

Journal for Star Wisdom 2017

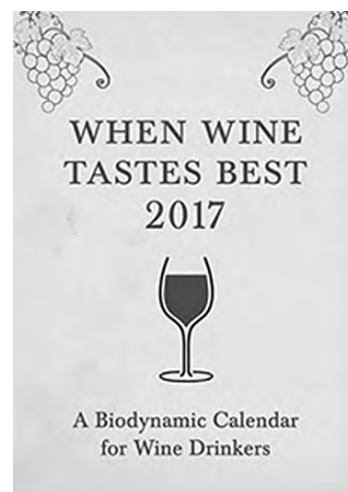
Robert Powell – \$25.00

When Wine Tastes Best 2017: A Biodynamic Calendar for Wine Drinkers

\$7.95

When you buy a bottle of wine to enjoy at home, wouldn't you like to know when it's going to be at its best?

Based on the *Maria Thun Biodynamic Calendar*, this handy little pocket guide tells you which days are optimum wine-drinking days and which days to avoid if you want to get the most out of your glass. At least two major supermarket chains only do their wine tastings on the best days as indicated by this calendar! As noted in the forward of this pocket-sized guide, wine is considered a living organism, which includes "wine in a bottle," and is thus governed by the same astral influences that affect every living being. The guide is easy to use, and is intended for both the most seasoned biodynamic practitioner and the novice. *When Wine Tastes Best 2017* also is available as an Apple app purchased through iTunes.



Books

The Biodynamic Orchard Book

Ehrenfried Pfeiffer and Michael Maltas – \$17.95

The Apple Grower: A Guide for the Organic Orchardist

Michael Phillips – \$40.00

Preparations

Biodynamic Tree Paste – \$30.00

Sequential Spray Kit – \$24.00

Valerian (BD #507) for Frost Protection – \$3.25

All of the above are available through JPI.

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.



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BIODYNAMIC ASSOCIATION

World Biodynamic Farming Day

Over a 24-hour period on June 3 and June 4, groups and individuals around the world will be spraying biodynamic preparations, creating a wave of healing energy encircling the planet. There will be community gatherings with music, poetry, eurythmy, and prayer in celebration and gratitude to accompany the stirring and spraying of the preparations. Some groups even have campouts planned.

This event was inspired by “World Eurythmy Day” where the question arose, “Why was there no annual ‘World Biodynamic Farming Day’ yet” – a day when the biodynamic farming community and friends can come together to offer the preparations to the Earth and her beings on a farm or garden, at a local school or church, or even on municipal ground at approximately the same local time worldwide.

It was originally suggested that horn manure (BD #500) be sprayed out on the evening of Saturday, June 3, with horn silica (BD #501) sprayed out the following morning at sunrise. At JPI, we encourage you to take this opportunity to spray all of the preparations out during this powerful synchronized event. Barrel Compost (which contains all six of the compost preps) could be added to the horn manure during the last twenty minutes of stirring and sprayed out together in the evening. The following morning, *Equisetum* tea (BD #508) could be added to the horn silica during the last twenty minutes of stirring and sprayed out together at sunrise. The JPI “Sequential Spray Kit” contains all of the preps needed for this activity.

We encourage you to participate in this coordinated event wherever you are, knowing that others around the world are in coherence with this intention of healing the Earth. Please share news of World Biodynamic Farming Day. The more people who participate, the more powerful and pervasive the biodynamic healing influence will be.

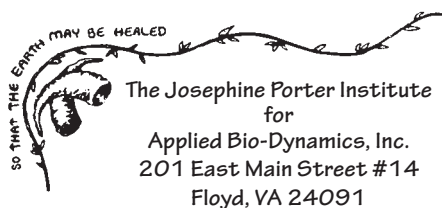
For more information and to connect with others who are participating, visit www.worldbiodynamic-farmingday.org/

In Gratitude

- Kelly Hill, Missoula, MT, for chamomile blossoms.
- Jim Marquardt and Charlotte Connell, VA who generously donated biodynamic and anthroposophic books to the JPI permanent library.

For what lies inside the human being is the whole spiritual cosmos in condensed form. In our inner organism we have an image of the entire cosmos.

Rudolf Steiner



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