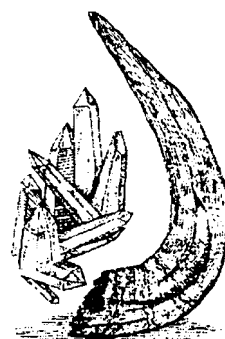


Applied BIODYNAMICS®



Summer, 2005

Newsletter of the Josephine Porter Institute • Woolwine, Virginia

Issue No. 49

Biodynamic Flower Production: Demystifying the Method

Paul Sansone



Twenty-seven years ago Paul Sansone and his wife Susan Vosburg began their nursery, Here & Now Garden in Gales Creek, Oregon growing herbaceous

perennials and woody ornamentals for commercial cut flower production. Establishing their operation with only a three-acre parcel, they eventually expanded to thirty-two acres, of which twenty-eight acres were in intensive raised beds.

Rudolf Steiner believed that the quality of the food needed to improve in order for people to have enough will to be capable of making the choices that would lead to a harmonious relationship with nature. And so the emphasis has been on food production. But elsewhere in his lectures and discourses on related subjects, Steiner spoke extensively about the human need for beauty and art and how they strengthen the will. The application of biodynamics should not be limited to the production of food. Surely we have matured to the point where we can see the damaging effects of materialistic science on the entire environment. Whether or not we personally eat a product is not really important. We are still connected and affected by all our society's actions.

When we began to grow cut flowers biodynamically we were told by conventional producers that it was not economically feasible or technically possible to produce the premium quality required by the market. After all, one imperfection on a flower and its value moves from gold to garbage. We chose to grow flowers because we needed to earn a living from our agriculture. The math told us that intensively grown cut flowers were capable of yielding the

highest dollar value per acre of almost any crop. We knew we could grow high quality flowers because as apprentices to Alan Chadwick, who helped develop the Biodynamic French Intensive Method at the University of California at Santa Cruz Farm Project, we had been forced to grow flowers. We came to learn how to grow food without chemicals, and were taught the importance of diverse polyculture to the health of the farm and the need for beauty.

The Biodynamic French Intensive Method developed by Chadwick is labor intensive and designed for small acreage and operations functioning without mechanical equipment. We adapted these methods of horticulture to commercial floriculture production. Improved technologies are available today for the application of the Biodynamic Method. Modern agriculture has developed specialized tractors and bed shaping equipment, mechanical mulchers, reusable polypropylene mulch, computerized drip irrigation and mechanical spraying and injection systems. These advances permit the implementation of the Biodynamic



Eupatorium growing at Here & Now Garden. All photos for this article courtesy of Paul Sansone and Susan Vosburg.

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Notes

Growing flowers for market is an art unto itself. The specialty cut flower business has spread throughout this country, attracting farmers, first-time growers and seasoned market gardeners alike to this “trendy niche market” which has been going strong for over fifteen years. A recent article documents this popularity. In the July–August 2005 issue of *AT-TRAnews*, the bi-monthly newsletter of the National Sustainable Agriculture Information Service, it was reported that nearly half the vendors at a local Fayetteville, Arkansas Saturday farmers’ market were selling specialty cut flowers. With this in mind, we are very fortunate to have our lead article featuring the expertise of grower Paul Sansone, who presents a comprehensive mini-course on biodynamic flower production. In addition to his approach to growing specialty cut flowers, he thoughtfully elucidates the vital need for biodynamic agriculture in America.

Also in this issue, staff member Laura Riccardi delivers a lively summer report of the activities at JPI, as well as her experiences from a brief visit back home to suburbia. Be sure to check out the details in these pages for the National Biodynamic Farming and Gardening Association Conference. Hope you can attend this BD event in October.

—Patricia Smith, Editor

2006 Planting Calendar Now in Stock

The *Stella Natura 2006 Biodynamic Agricultural Planting Guide & Calendar* has arrived at JPI. The cost for the publication is \$14.95 plus postage and handling. The theme of the calendar is “Learning to Perceive Life Forces.”

Please Write

We welcome your articles, letters, book reviews and shared experiences of observations in biodynamics. Send to: The Editor – *Applied Biodynamics*, P.O. Box 133, Woolwine, VA 24185.

Horn Stuffing Saturdays for BD #500: October 1, October 22 and November 12

This fall, we will need to bury several thousand cow horns, and in order to accomplish this are scheduling three different Saturday sessions for specific focused horn stuffing efforts. Any and all of our good friends out there who can schedule one or more of these Saturdays listed above to help us will be doing the biodynamic effort in this country an enormous service. Please RSVP at (276)930-2463 or via email: <info@jpibiodynamics.org>.

Applied Biodynamics

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Mission

The Josephine Porter Institute for Applied Bio-Dynamics Inc. (JPI), was founded to produce quality biodynamic agricultural preparations based on the spiritual-scientific research of Rudolf Steiner.

It serves as a living memorial to Josephine Porter, a pioneer for this work in America.

The mission of JPI also includes education and research in biodynamic agriculture. JPI undertakes these tasks so that the earth may be healed.

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Biodynamic Flower Production: Demystifying the Method

Method without suffering economic penalties of higher production costs.

For Those New to Biodynamics

Fertilization based on properly prepared compost is critical. The Biodynamic Method is focused on improving the health of the nursery or farm as a single organism with humans as the conscious steward guiding its processes.

The Biodynamic Method utilizes three basic practices for restoring vitality to the nursery.

- 1) Fertilization with compost made with the six biodynamic preparations #502–507.
- 2) Treating the entire nursery with properly prepared biodynamic field sprays, at least twice a year.
 - A) BD spray #500 (Horn Manure)
 - B) BD spray #501 (Horn Silica)
- 3) Application of BD #508, Horsetail (*Equisetum arvense*) tea for control of fungal and viral diseases.

The nine biodynamic agricultural preparations are meant to work together as a whole and are not intended to be used in isolation. It should be emphasized that the biodynamic preparations are much more than just specific inoculates for compost or biological growth stimulators. Recent scientific research into how the biodynamic preparations work in compost and on soils has shown that properly treated compost contains thousands of genera of microorganisms. Work at the Woods End Research Laboratories, and universities primarily in Europe has shown that many commercially marketed inoculates and specific fungal or bacterial strains die shortly after introduction. Research has shown properly applied biodynamic preparations create the proper environmental conditions for naturally present beneficial microorganisms to flourish.

Biodynamic Preparations Legend

BD #500 – Horn Manure

BD #501 – Horn Silica

BD #502 – Yarrow

BD #503 – Chamomile

BD #504 – Stinging Nettle

BD #505 – Oak Bark

BD #506 – Dandelion

BD #507 – Valerian

} Compost
Preparations

BD #508 – Horsetail (*Equisetum arvense*)

(For further reading of this subject, see page 8, Publications, Paul Maeder et al, article which documents the benefits and the foundations of how these practices work in nature.)

Soil and Cover Crops

Production fields should have a soil analysis defining soil structure, humus content and chemical nutrient levels. The optimum soil for perennial and cut flower production is a sandy loam soil that is well drained and has a high humus content. Specific deficiencies can be corrected through altering the content of nutrient for the plants and additives to the biodynamic compost.

The current weed population and surrounding field populations should be analyzed for development of a weed control program. Specific cover crops can be chosen to discourage or eliminate weeds. Spring/summer sowings of buckwheat followed by over-wintering with annual rye/vetch will eliminate joint-grass and dramatically reduce morning glory (*Convolvulus*). Sudan grass produces incredible quantities of vegetative matter to aid in building soil humus levels. In addition, Sudan grass has an extensive fibrous root system that is very valuable in healing the damaging effects of improper cultivation practices like digging or sowing crops in wet soils.

Cover crops are an excellent means of preparing the soil of nursery production fields. It is possible to get as many as five different rotations of cover crops in a single year. Other excellent cover crops are crimson clover, fava beans, oats and alfalfa. Cover crops are generally tilled in at peak flower before seed is set in the plants. Crops are generally mowed or flailed and then tilled in. The value of the cover crop is greatly diminished by leaving the mowed vegetative material on top of the field too long. Establishment of a healthy soil is greatly enhanced when Biodynamic Compound Preparation (a. k. a. Barrel Compost) or Pfeiffer BD Field Spray is sprayed on cover crops before they are tilled in. The time necessary for the soil to break down the vegetative matter can be reduced to as little as two to three weeks with these field sprays.

A year in a cover crop rotation can significantly improve both soil structure and biological activity in the soil. For those converting from chemical to Biodynamic Methods, such biological activity is especially important if the use of fungicides and pesticides is to be avoided. Substantial quantities of plant material incorporated into the soil by the tilling in of cover crops promote the growth of abundant microorganisms in the soil. These microorganisms are 99.9 percent beneficial to plants. Many microorganisms are natural predators to the fungus and bacterial diseases of nursery crops. Properly prepared compost applied annually to the field is important in maintaining soil fertility and increasing microbial activity.



Tilling in a cover crop of field pea, vetch and annual rye using a spader attachment.

It is useful to visualize the amount of plant material produced by the nursery that is actually exported. These bunches of cut flowers leaving the farm require that an equal amount of composted plant material be returned to the soil if the production system is to be sustainable. The production and application of compost must equal the mass of plant material exported, or the soil is being “mined” of its nutrients for the crops sold. Unless this material is replaced, soil will lose fertility, stable humus levels will decline, and cultural problems will increase.

Fertilization

Each spring $\frac{1}{4}$ to $\frac{1}{2}$ inch of ripened biodynamic compost should be top-dressed for perennial plants. Biodynamic compost is a specific kind of compost that requires six months to a year to break down and become fully stable for use. The specific compost most suited to cut flower production is Dr. Ehrenfried Pfeiffer’s recipe that is made from layering materials into a windrow pile twelve to fifteen feet wide, six feet tall and as long as is necessary to produce the



A top-dressing of $\frac{1}{4}$ to $\frac{1}{2}$ inch of ripened biodynamic compost is applied to the beds for perennial plants each spring. Utilizing this mulcher attachment, eight to ten acres of perennial beds can be top-dressed in one day.



This PTO driven mulcher attachment with a brush that finely crumbles compost was designed by the author several years ago.

quantity of compost necessary for production. This compost is comprised of dairy manure, soil, plant trimmings (from the fall clean-up), leaves or some highly carbonaceous plant material such as straw or spoiled hay. The materials are layered onto the pile to assure a carbon/nitrogen ratio of approximately 30 to 1. Soil additives are also incorporated into the compost to become stabilized for more efficient utilization by the plants. These additives are greensand, rock phosphate, oyster shell and kelp. Approximately fifty pounds of each additive is used per twenty-five tons of compost. The compost is treated with the BD Compost Preparations #502–507 to produce a balanced plant food and soil conditioner. Large windrow piles can be efficiently made using a PTO driven manure spreader to mix and throw the compost ingredients into a pile by unloading in a single place and moving the spreader forward as a windrow is created behind the spreader.

This finished compost is rich in trace elements and the microflora necessary to produce a healthy soil capable of inhibiting fungus and viral diseases. An excellent description of making this compost is in Dr. Ehrenfried Pfeiffer’s book *Using the Biodynamic Compost Preparations and Sprays*.

Plant food is banded into the bed under where the cut flower plants will be planted when the bed is being shaped or it is worked into each planting hole for the plants as they are being planted. This balanced plant food is four parts seed meal, one part rock phosphate, one-half part kelp and one part greensand.

Depending upon the requirements dictated from a soil analysis, generally the application of compost, manure and plant food is necessary for optimum growth.

Tillage

The Biodynamic French Intensive Method of horticulture includes an emphasis on deep cultivation and raised beds. Alan Chadwick observed that plants growing in landslides had increased growth. The tumbling action of a landslide produces



A finished bed (l.) next to a nearly finished, or pre-bed (r.).

an upper soil horizon with increased pore space between soil particles, better soil aeration and increased root growth in plants. This resulted in increased production and plant vigor.

The French Intensive Method duplicates this environment with the double digging and raising of the plant beds. Raised beds increase plant growth and flower production by increasing the area of the upper soil zone available for root growth. Mechanically produced raised beds can be constructed with tractor-mounted bedding equipment. In clay soils the intensive method calls for double digging or deep non-soil horizon mixing tillage of the soil. This can be accomplished mechanically with a spader attachment on a tractor, such as the Falc spade cultivator. Here & Now Garden plants in ten-inch-high, three-foot-wide raised beds.

Plant Spacing

Most perennial cut flowers are planted 1.5 plants per lineal foot of bed in a matrix pattern. A matrix pattern is created by staggered planting rows. This gives each plant a sixteen-inch diameter root zone. In perennial plantings this spacing produces a bed that is completely covered by the leaf canopy by the end of the second growing season. Most annual cut flowers are planted 2.5 plants per lineal foot of bed, with each plant having a twelve-inch diameter root zone.

The utilization of matrix planting on raised beds significantly increases the number of plants that can be grown per acre. For example, in peony production, raised beds matrix planted result in 10,000 peony plants per acre compared to about 7,000 plants per acre in row cropped fields.

Weed Control

The use of precision mulching in the cultivation of cut flowers seeks to reduce the area of the field available to weed growth through restriction of light to the soil. Woven polypropylene fabric is used to cover any field area not utilized by the plants.

Bed tops are covered with the most porous material



Weed barrier is laid out on top of the bed and on top of the path. The U.V. inhibited woven polypropylene material on the path can withstand tractor and foot traffic. All are stapled together with six inch earth staples.

available to allow adequate water and air to the soil. Soil will not turn anaerobic under woven polypropylene as it does under black plastic. The mulch must restrict light to weed seeds but allow the soil to breathe.

When the beds are formed the soil has been worked to a fine tilth and is weed free. These beds are then covered with a highly porous woven polypropylene weed barrier. Plant holes that are six inches square are burned with an electric cattle branding iron shaped in a six-inch square into the three-foot-wide weed barrier arranged in the matrix pattern described earlier. The paths of the beds are covered with a ultraviolet inhibited woven polypropylene. In this way the entire field is either covered with weed barrier or plant canopy. This material is commonly used under containers in nurseries and can withstand tractor and foot traffic while allowing some air and water penetration.

The top of the bed is then mulched with a one to two inch layer of horse manure/wood shavings. This mulch is spread with a tractor-mounted mulcher capable of mulching eight to ten acres of raised beds in a single day. The polypropylene weed barrier prevents weed germination on most of the bed, and the layer of horse bedding mulch smothers weeds in the uncovered planting holes. The perennial plants can easily break through this mulch and crowd out any weeds. The bed tops require three to four hand weeding annually to remove small windborne weed seeds that attempt to establish in soil of the planting holes in the weed barrier. The amount of weeds that germinate in this area is small and two persons weeding by hand can clean a two-acre field in a day. Weeds are eliminated using this method without herbicides.

The weed barrier remains on the bed for two to three seasons until the perennial plants establish themselves and the crowns begin to crowd the planting hole. By the third growing season the plants have established a heavy leaf canopy that will cover the entire bed and easily compete with most

weeds. Depending upon the quality of the weed barrier purchased, the useful life can exceed ten years. We have some material that has been in continuous use for over twenty years. Recycling of used material is now possible in Oregon.

Fields irrigated with a drip irrigation system will water only the planted area of the field and dramatically reduce weed growth in other areas. This can lead to a significant reduction in weeding costs.

All tractor paths are sown in a permanent cover of perennial low growing grasses and white clover. These paths are mown and the clippings collected for compost. A two-foot tilled swath is maintained around the sections of the production fields covered with polypropylene mulch. This prevents invasion of weeds by runners into the poly-mulched area.

Field Hygiene

A field free of weeds will have less competition for water and plant nutrients. To avoid problems associated with monocropping, cut flower fields should be interspersed by species. If some crop diversity can be maintained on the farm and weed populations are kept in check, the incidence of viral diseases and pest infestations is dramatically reduced.

At the end of the season all perennial plants are mowed down to the ground and this plant material is removed and composted. The beds are then top dressed with ¼ to ½ inch of biodynamic compost and then mulched with the one to two inches of horse bedding. This fall clean-up and top dressing is important for control of disease. Many future disease problems are eliminated by the removal and composting of potential pathogens. The application of finished compost (and additional nutrients as necessary) increases soil microbial activity, which inhibits remaining pathogens. The removal of weeds eliminates competing plants and possible hosts of pathogens. As long as specific crops are kept in small units on a diversified farm, the field will not be a reservoir for the production of cut flower specific pests. Compost is applied the following early spring.

Watering

Cut flowers benefit from precise watering. Although many perennial cut flowers can be observed sustaining tremendous amounts of neglect around many old houses, the plants do produce more flowers and grow healthier with proper watering. The ideal watering system is one that allows both overhead and drip irrigation. The drier the foliage during the flowering season, the lower the incidence of fungal diseases and Botrytis. Drip systems delivering water only to the roots are ideal.

Overhead watering is an efficient way to foliar feed, and apply prophylactic sprays to prevent Botrytis and powdery

mildew. Some preparations such as BD #508 may be injected into the drip irrigation system for application directly to the soil.

Fungus and Botrytis Control

Fungus and viral infections are controlled first by proper soil cultivation and secondly by proper stimulation of plant growth. The extensive effort placed in soil preparation and compost application will foster the development of plants that are naturally resistant to infection. BD #500 is used in early spring to stimulate healthy root growth. In the early summer BD #501 is utilized to inhibit fungus and virus disease and stimulate leaf growth and plant vitality.

Botrytis is of particular concern for many cut flowers in the Pacific Northwest. Botrytis damage has been prevented by utilization of the Biodynamic Method. Two efforts are required: enhancing the plants resistance to the incubation of the Botrytis spore, and encouraging microbial activity in the soil to draw fungal activity away from plant foliage.

The resistance of plant foliage to fungus and Botrytis infection can be increased by foliar feeding every ten days during cold wet weather in early spring. The leaves of the plants are wetted with a foliar spray of kelp/fish and BD #508. One and a half ounces of chopped dry Equisetum is required to make about four gallons of BD #508 fermented tea which is sufficient for two acres of thick foliage.¹ The BD #508 is diluted into fifty gallons of the kelp/fish spray and applied at the same time. These sprays can also be injected into overhead irrigation for easy application. In recent years we have begun to apply BD #508 to the soil using the drip irrigation system and have found it equally effective. We apply Barrel Compost made into a compost tea as a foliar application when we need extra protection. This has also proved very effective against powdery mildew and rust infestations.

Plants should be scouted daily for Botrytis. Infected plant parts are pruned, collected and sent to the landfill. These prunings are not burnt since Botrytis can spread on smoke. If Botrytis erupts to a problem level despite these preventative measures, a copper sulfate(*) spray can be used as a control method to limit the infestation to an economically acceptable level.

After the crop has died back for the season, all the plants are mowed to the ground and the dead plant material is composted in treated compost piles. This field sanitation is an important element in control of fungus diseases.

***For use of products qualifying for Biodynamic certification, contact the Demeter Association, located in the Resources Section at the end of this article.**

Insect Pest Control

Flea beetle (*Epitrix*, various species) and Cucumber beetle (*Acalymma vittatum* or *Diabrotica undecimpunctata howardi*) are the primary insect pests that can do extensive damage to the flower buds during formation. The beetles chew the edges of the flower, or they bore into the bud slightly. Scouting of the field is necessary to determine if the beetle populations are reaching damaging levels. Long periods of warm weather can increase the beetles to levels where the damage affects the crop. One or two applications of Pyrethrum(*) spray can reduce populations enough to harvest undamaged crops. Timing of these sprays is critical to their effectiveness. The most productive time to spray is early afternoon when beetle activity is highest. These control methods should be used sparingly because populations of beneficial insects are also reduced by these broad-spectrum insecticides. [Note: Ashing of pests and subsequent application of pest peppers can also be useful for insect control. Ed.]

In a well-established biodynamic operation high populations of beneficial insects often develop without artificial introduction. Parasitic enemies of Cucumber beetles include a tachinid fly (*Celatoria setosa*), a braconid wasp (*Syrphidius Diabroticae*), and a nematode (*Howardula benigna*). The most important predator of Cucumber beetles is a soldier beetle (*Chauliognathus pennsylvanicus*).

Insect, disease and weeds are visible symptoms challenging the grower to understand what part of the farm organism is weak or out of balance. Changes in cultural methods, elimination of habitat, introduction of biological controls, or specific application of biologically derived pesticides are all acceptable methods to maintain economic production and continue building a sustainable ecological growing operation.

Walking the Walk

At the end of each day, we try to walk the farm and just experience the place. My wife Sue always brings along a plastic sack to pick up any garbage or trash she may find. I travel with a small notebook to make myself notes and list things that need to be done. In recent years we have added a small Jack Russell terrier to our group. She smells everything and constantly draws our attention to a world infused with odors.

We may not see the dancing fairies, but the plants draw our attention to small details and the beginning of problems. It is during these walks that we find new flower varieties, which are spontaneous sports for other varieties. We notice an insect problem beginning, by being called over to look at the underside of a leaf. We notice slight wilting and see gopher damage. Perhaps a color irregularity calls us to see the beginning of a nutritional or disease problem. These things jump out at us, call for our attention (mixed in with the



Sue Vosburg with the family's Jack Russell terrier.

appreciation of the beauty and the occasional gum wrapper).

At our farm and nursery, we grow people and soil, and the flowers pay for it. Our goal is to cultivate a healthy farm organism that supports us and brings benefits to everyone it touches. We focus on paying attention to the details, to what is happening in the moment. A continuous parade of flowers gently reminds us of where we are, and the great need to appreciate it. Hence the meaning in the name of the business. We try to provide the beauty of the natural world as it unfolds. Our flowers are the beauty of the Here & Now. Steiner has written that etheric life forces are enhanced if our work is dedicated to the greater good.

Notes

- 1) Information for the Fermented Version can be found in *Applied Biodynamics*, Issue #8, Sidebar #3, p. 11. You can also find this version if you have received an information pack included with your *JPI Product Catalog*. It is titled "An Alternative Method for Applying BD #508 – Horsetail Herb (*Equisetum arvense*)."



Paul Sansone among the many acres of peonies. Harvests at times numbered 250,000 to 300,000 stems of peonies being shipped out over a three week period.

Resources for Getting Started in Biodynamic Flower Production

Publications

John Jeavons, *How to Grow More Vegetables Than You Ever Thought Possible on Less Land Than You Can Imagine* (Berkeley, CA: Ten Speed Press, 2002).

This is an excellent primer on the Biodynamic French Intensive Method.

Paul Maeder et al, "Soil Fertility and Biodiversity in Organic Farming", *Science* #296 (2002): 1694-1697.

Long term comparison of biodynamic, organic and conventional farming systems; Swiss agronomists carried out a twenty-one year field study summarized in the journal.

Biodynamic Preparations

Preparations are made by experienced biodynamic farmers and gardeners, or produced by local biodynamic groups.

The preparations are available for purchase from the Josephine Porter Institute. Also, JPI offers training in preparation making and publications. See contact details on page 2.

General Information and Publications

Biodynamic Farming and Gardening Association, Inc.
25844 Butler Road, Junction City, OR 97448
(541) 998-0105; fax: (541) 998-0106
<biodynamic@aol.com>; <www.biodynamics.com>

Biodynamic® Certification

The Demeter Association, Inc.
25844 Butler Road
Junction City, OR 97448
(541) 998-5691; fax: (541) 998-5694; <www.demeter-usa.org>
At their website you can download guidelines and standards for Demeter Certification.

The Case for Biodynamics

Paul Sansone

What is lacking in modern ecological sciences and organic farming methods is a worldview that goes beyond materialistic science. At its worst, organic agriculture is the materialistic chemical agricultural system with organic inputs substituted for synthetic chemical inputs. biodynamics differs from chemical and early American organic agriculture in its worldview. Biodynamics views the world as interrelated sentient organisms with a spiritual dimension. The farm is a living organism. The farmer is a conscious part of the organism, guiding its development as a steward intent on maintaining an ecological balance. The farmer is in intimate communication with the life forces that create the farm.

Current organic agricultural systems need to evolve to recognize the living systems involved in agriculture and work with stimulating their etheric life forces. In biodynamic farming there could never be a farm based on "Organic Hydroponics". In the biodynamic view, the plant cannot be cultured as a separate materialistic entity sustained in a bath of organic nutrients. Hydroponics is akin to a medical patient in a hospital intensive care unit. The patient's life is maintained by artificial support systems. The patient may be alive; but vitality, vigor and disease resistance are not possible without lots of expensive and complicated inputs. True health cannot be maintained. "Organic Hydroponics"

is just the substitution of natural inputs for synthetic ones. It may be an improvement on chemical agriculture, but it is still based on an incomplete view of natural systems. It is an unstable artificial environment.

Implementation of the Biodynamic Method utilizes a huge diversity of microorganisms, biological and chemical processes, and life-force stimulators and enhancers. Not just a single organism for a single symptom. So while we may be able to apply the biodynamic system without believing or understanding the underlying theology or philosophy, we must not use science with an arrogance that disregards the spiritual or etheric life force aspects of the method.

Biodynamic farms are, by definition, self-supporting organisms with a minimum of commercial outside inputs. This is the primary reason why it has not received greater acceptance. It is not a great profit generator for agribusiness. It is however easier than industrial chemical agriculture. The longer it is applied to the farm, the fewer problems are encountered. The very existence of a disease, or insect infestation is viewed as an opportunity to fine-tune the application of the method and improve the health of the farm organism. The goal is always to work with the underlying causes of the problem, not continuous Band Aids on the symptoms. To truly implement the method, the farmer must be in constant communication with the farm. It is incumbent upon the practitioner to pay attention and listen to the farm. The old saying goes: "The best fertilizer is the farmer's shadow."

Cut Flower Growing

Association of Specialty Cut Flower Growers,
ASCFG, MPO Box 268, 17½ W. College Street
Oberlin, OH 44074,
(440)774-2887; fax (440)774-2435;
<www.ascfg.org>

Compost Analysis and Laboratory

Woods End® Research Laboratories, Inc.
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organic, biodynamic and conventional agriculture. Extensive listing of publications and references on website.

Woven Polypropylene

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<www.dewittcompany.com>

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Gridley, CA 95948
(530)846-6401; fax (530)846-0390
<www.ferrari-tractors.com>

Paul Sansone and Susan Vosburg have retired as commercial cut flower growers. The nursery is in the process of being converted to formal gardens and a family homestead. Susan Vosburg is a tax consultant/accountant, quilter and gardener. Paul Sansone is a horticultural consultant and is breeding new cut flower varieties, lecturing and writing. He is currently consulting with several nurseries and hopes to begin work on a book about biodynamic horticulture. Correspondence and questions can be sent to P.O. Box 6, Gales Creek, OR 97117 or calling (503)359-3541; fax (503)357-3858; or e-mail at <psansone@pacifier.com>.

Seven Essential Elements of the Biodynamic (BD) Method

1. Fertilize primarily with compost. Make BD compost using the compost preps. Make compost from farm waste, manure, and the compost preparations. Preparations can be purchased, properly stored, and used according to instructions.
2. Use the BD preparations. Invest as little as four to eight hours a year of work. Stir and spray BD Preparations #500 (Horn Manure) and #501 (Horn Silica), at least twice a year. In the early spring and in the fall. Design appropriate application methods for the scale of the farm. This should be easy to accomplish, and mechanized enough to be pleasurable. Make tea of BD #508, ferment, strain and store. Apply as necessary during the spring/summer.
3. Grow soil. Whatever you grow, concentrate on systems that improve the soil. Manage soil cultivation, planting, and weed control in the most optimum manner for the maintenance and increase of soil fertility. Grow great soil and all other problems that may occur will be more manageable.
4. Plant diverse crops. Avoid monoculture, embrace polyculture. Design farm products to be marketed around diverse crops, avoiding large blocks of a single plant or a single crop.
5. View the farm as an individual organism. Design your farm systems to minimize the need for high inputs of labor or materials from off the farm. Mechanize for efficiency and profitability, but avoid over complicated systems or facilities.
6. The farmer is the conscious steward of the farm organism. Keep records. Observe everything. Know how to do every task on the farm and which way is most efficient. Walk, get a dog, smell the flowers. Know every living creature on, in and around your farm. Trust your intuition, it is the farm talking to you. Enjoy the best job on earth!
7. Use the biodynamic calendar as a tool to connect farm, farmer and cosmos. Use your *Stella Natura* calendar as a journal. Plant and weed according to the recommendations whenever possible. Avoid blackout periods. Celebrate each solstice and equinox. Observe eclipses, conjunctions, occultations and perigees. Enjoy being a small creature riding around the solar system on a beautiful planet within a huge universe affecting everything we do, see, or feel.



The Slope Garden at JPI in early summer. Photo © Laura Riccardi

Greetings from Woolwine, Virginia

Laura Riccardi

I am experiencing a blissful moment in time these days at JPI. We have had an especially beautiful spring and summer as of mid-July with cool temperatures, adequate rainfall and more twinkling fire-flies at night than I've ever seen before.

It is incredibly lush and wild in southern Appalachia this time of year. The many snakes and tree frogs are with us now, as are the whippoorwills and hummingbirds. There are countless different types of dragonflies and each day I see an insect new to my reality.

Life back here in the country is ALIVE, and it seems to feed our senses as well as our gardens! It is a bountiful garden season and we are eating much variety from the land. I have learned so much already this year as I apprentice with the plants themselves. The garden is tended closely, intimately as the symphony of an intensive garden speaks to us, and we learn as we go.

The prep work, which began in May is in full swing as we dig up and tap out 8,000 horns worth of BD #500. So far, we have processed valerian, stuffed many stag bladders

with hand-clipped yarrow, dug up and re-made a dozen brick pit's worth of BC, buried stinging nettle and horn silica, and "harvested" last year's batch of yarrow preparations. We are hoping friends will come to the farm for our fall prep making season to help us stuff even more horns this year and make the compost preparations with us! (See our website <www.jpibiodynamics.org> or *Applied Biodynamics*, Issue No. 48 for JPI's Fall 2005 Prep Making schedule.)

Inside the JPI building, the office is always busy and sometimes the work is overwhelming. I think it will only continue in this direction as more and more people are coming to biodynamics. We're getting ready for this additional interest and our "crew" is dedicated to the mission of developing both our preparation services and the land we are on. Thankfully, we live in a most beautiful environment that is blessed with the nourishing qualities of life on a biodynamic farm.

Recently I left the farm for a family reunion and wedding back home, and upon leaving had the feeling of being ripped away from the life force that feeds me in so many ways. I

didn't think I could bear an entire week of Long Island, NY living with no cows in sight, no BD food, and no pure water straight from the ground; yet a funny thing happened that made it okay. Besides taking a duffle bag full of garden produce with me (parsley was my "quick fix" after every meal) I encountered endless people asking me about biodynamics and farm life, with a sparkle of sincere interest in their eyes. I thought to myself, "People are ready for change."

Although I am known to be an optimist I would still

swear there is about to be a turn in the tides; and that those of us working with Steiner's indications for agriculture are in for an opportunity we may have worked many lifetimes to help create.

Laura Riccardi is a staff member and has lived and worked at JPI since 2002. She works in the office, helps make the preparations and tends the gardens. Laura also serves as a member of the Board of Directors and treasurer of the Biodynamic Farming and Gardening Association.

National Biodynamic Conference October 14–16, 2005

The Biodynamic Farming and Gardening Association's Annual Conference will be at Jeff Poppen's Long Hungry Creek Farm in Red Boiling Springs, Tennessee. Held concurrently with the farm's Tenth Annual Harvest Festival, all of the meals will be homegrown and biodynamic. One session of workshops will be presented by professional market gardeners explaining how they grow specific crops biodynamically. There will also be workshops on raising cattle, sheep, pigs, chickens and bees, as well as talks on compost and compost tea, and presentations on Rudolf Steiner's work in the fields of medicine, education and meditation. A special pre-conference workshop, "Demystifying Biodynamics," will be a hands-on making of all the biodynamic preparations and how to apply them.

Enjoy a peaceful weekend on a working farm, with plenty of time for personal discussions with workshop leaders from across the country. Speakers include Sarah Cherry, Sarah Flack, Luke Frey, Jim Fullmer, Günther Hauk, Sandor Katz, Harvey Lisle, Phillip Lyvers, Eric Smith, Shep Smith, Vinnie McKinney, Lloyd, John and Harold Nelson, and Hugh Williams.

For attendees who choose to stay on the farm, there are plenty of beautiful camping spaces and also a barn loft. Historic hotels in Red Boiling Springs offer accommodations at very reasonable rates. For more information, or to register for the conference, please contact the Biodynamic Farming and Gardening Association, (888) 516-7797; <biodynamic@aol.com>; <www.biodynamics.com>.

Publications Now Available from JPI

New Title

Nature Spirits and What They Say, Interviews with Verena Stael von Holstein and edited by Wolfgang Weirauch is available from JPI for \$23.50 plus \$5.00 postage and handling.

Adams Translation of Steiner's Agriculture Back In Print

Agriculture Course – The Birth of the Biodynamic Method
Out of print for nearly ten years, the George Adams trans-

lation of Rudolf Steiner's Agriculture Course is now available from JPI for \$26.00 plus postage and handling (\$5.00). A must-have for those who plan to pursue biodynamics in depth. Known as the Adams translation, this was the first English version available prior to the release of the Creeger/Gardner translation of the Agriculture Course, *Spiritual Foundations for the Renewal of Agriculture* in 1993.

The correct balance of woods, orchards, bushes, and meadows – with their natural growth of fungi – is so essential to good farming that your farm will really be more successful even if this means a slight reduction in your tillable acreage. There is no true economy in using so much of your land that all the things I've mentioned disappear. The resulting loss in quality will far outweigh the advantage of being able to cultivate a larger area at the expense of the other things. Without this kind of insight into the interconnection and interaction of nature, it is really almost impossible to engage in an enterprise like farming, which is so closely bound up with nature.

Rudolf Steiner – *Spiritual Foundations for the Renewal of Agriculture*, Lecture 7, p. 148



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