



Michigan Organic Connections

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In This Issue:

A Message from the Chair	1
Principles and Perspectives Related to Nutrient Dense Food:	
A Conversation with Dr. Katherine Alaimo.....	2
Handheld Meter to Measure Food Quality	6
The Power of Nutrient Dense Food	7
A Naturopathic Perspective to Why Your Cells Need Deep Nutrition For Vibrant Health.....	8
The Farm Touring Begins.....	10
Policy Corner	11
Organic Intensives Announced for 2019	12
From the Editor.....	13
MOFFA News	13

A Message from the Chair

Hello MOFFA Members and Supporters,

We are in the throes of harvest here in Michigan, and in this newsletter we're presenting one more reason—nutrient density—to work hard in the farm or garden and shop at your local market, if you're not already a vendor there! As we hear more and more about nutrient density, the first article by John Biernbaum (with Katherine Alaimo) is extremely helpful in defining the term as it applies to both nutrition and agriculture. The article also opens the mind up to different ways of considering the food we eat, the plants we grow, and the animals we live alongside. It's the perfect time of the year to contemplate the bounty of the season, and to appreciate the tired and worn-out farmers at the market by thanking them and paying them a fair price.

Within the nutrient density conversation, there is a lot of talk of plant breeding and selecting for size and appearance rather than nutrition, which certainly has affected nutrient density. I would also like to highlight an article that Politico.com published last year, which made a compelling case that rising CO2 in the atmosphere is also to blame (<https://www.politico.com/agenda/story/2017/09/13/food-nutrients-carbon-dioxide-000511>). The entire article is fascinating, but what has stuck with me all year, and is



especially relevant as I see the goldenrod in bloom again, is the following paragraph:

"They found that the protein content of goldenrod pollen has declined by a third since the industrial revolution—and the change closely tracks with the rise in CO₂. Scientists have been trying to figure out why bee populations around the world have been in decline, which threatens many crops that rely on bees for pollination. Ziska's paper suggested that a decline in protein prior to winter could be an additional factor making it hard for bees to survive other stressors."

Goldenrod, as most already know, is a wild plant that has not been bred for its appearance or shelf-life. Bees rely on it heavily in late summer, before the winter, for their nutrition. I believe and hope that our increasing understanding of climate change and its effects on plants is sure to spur the nutrient density conversation on as well. It's all connected, and I am hopeful there is an awakening coming as these changes become more clearly understood. I see our ability to define nutrient density and have educated discussions surrounding nutrient density as an important way for organic farmers to convey the value in the food they produce, and organic consumers to remember the reasons why they value organic food.

What follows are several great articles on nutrition and human and plant health, with some recommended reading and foundations of the

movement. For those that are interested in further reading about the role microbes play in the health of the gut as well as the soil, I also recommend [The Hidden Half of Nature](#), by David Montgomery and Anne Bikle. Anne is recovering from cancer and planting a garden at her home on barren fill dirt at the same time, and the experience allows the couple to draw many parallels between healthy soil biology and healthy gut microbes – a connection that science is only just starting to understand. As her body heals and her soil begins to teem with life again, they offer hope for the future as we continue to make these connections.

I, too, am hopeful for the future. The articles in this newsletter make me feel refocused and reenergized in the kitchen and the garden. I wish you all a wonderful end to summer, and I look forward to seeing some of you at the remaining Farm Tour!

—Emily Nicholls

After managing CBI's Giving Tree Farm for seven years, Emily Nicholls changed gears this year to work on various agriculture-related consulting projects with MSU, MIFFS, and the USDA. She and her husband own Rust Belt Roastery, a certified organic coffee roasting company in Lansing, and chase around a 1 and a 3 year old. She was elected Chair of MOFFA's Board of Directors in April, 2018.

Principles and Perspectives Related to Nutrient Dense Food: A Conversation with Dr. Katherine Alaimo

by John Biernbaum

I have been looking for an opportunity to share what I have been learning about nutrient dense food from many sources over the years and more recently from the Bionutrient Food Association. Teaching, writing, and sharing ideas is one of the best ways for me to consider how much I have learned and what I still need to learn. I would not call myself an expert on nutrient dense food, but it has been a long term focus of how I want to grow my own food and help others grow food.

Almost 20 years ago, when I was transitioning from working on greenhouse flowers to high tunnel food, one of my interests was to test the idea that improving production methods would improve the quality, flavor, and energy of fresh vegetables. I had read various authors who related the quality of food to the quality of human health. As I shared that idea, I remember an MSU colleague countering that what was needed was to just get more people to eat

vegetables of any kind rather than focusing on raising better vegetables.

About 6 years ago, after many efforts to help students and farmers grow vegetables year-round, I found myself working with Dr. Katherine Alaimo, another MSU colleague who teaches the Introduction to Human Nutrition course for close to 1000 students each semester. Katherine asked me to guest lecture so the students would hear about the MSU Student Organic Farm and organic farming in general. She had been a member of the SOF year-round CSA since she arrived at MSU in 2003.

Katherine recently shared with me some transitions she has made regarding how she teaches nutrition. She started teaching the way she learned, that broccoli had a specific nutrient content listed in the USDA food charts and that all broccoli was generally about the same. Over time she has become aware

how nutritionally different broccoli can be depending on how it is grown and handled.



In November 2016, Katherine and I attended the two-day workshop in Michigan presented by Dan Kittredge where he introduced the concepts

that form the basis for the Bionutrient Food Association (BFA). Katherine went on to attend the [BFA two-day conference](#) in Massachusetts in December 2017. Along the way we have been able to share her nutrition and community gardening perspective as it relates to human health, and my organic production perspective as it relates to soil health. We find ourselves excited, enthralled, and enamored with the idea that Dr. Daphne Miller shared in her book [Farmacology](#), and also by David Montgomery and Anne Biklé in their book, [The Hidden Half of Nature](#)—that there is a similarity between the root rhizosphere in biologically active soil and the gut microbiota in our human intestine.

Soil and gut microbiology and the relationship of the two are more than just hot topics now. The story will support the continued growth of organic farming and gardening as a tool to develop soil and human health. Soil and gut microbiology are also related to the concept of nutrient dense food.

Nutrient density related to food and farming is a large topic with multiple perspectives or priorities. My goal is to share several of those perspectives by starting at the beginning with the most commonly shared definition of nutrient density. The progression will be to then include some of the less common perspectives about nutrient density and what we know or don't know or need to know to help us be better organic farmers and gardeners.

Nutritionists Use Nutrient Density to Compare Food Types

The term nutrient density or nutrient dense food as used by human nutritionists and food scientists is an assessment used to compare the relative amount of nutritious substances in food compared to the amount of calories in the food. Katherine uses the comparison of soda (pop) and orange juice as an example. As beverages they both contain sugar. But in addition to sugar, orange juice contains many other useful nutrients. Another example is that a donut is considered a high sugar / high calorie food with lower nutrient density while kale is considered a very nutritious, lower calorie food with higher nutrient density. Processing can also impact nutrient density.

A potato is more nutrient dense than potato chips produced by frying in oil because the residual oil increases the calories without increasing nutrients.

This definition of nutrient density is a common starting point. The idea here is comparing one food type with another. Katherine explained to me that she introduces it on the first day of class and encourages students to use the concept of nutrient density as a tool to help make food choices. We need to consume a certain number of calories each day to have adequate energy. We also need sufficient nutrients for the body to work efficiently. Calories can come from low nutrient density foods, in which case we need to eat more of them to get the necessary nutrients. If we consume nutrient dense foods, we can eat less calories and still get the necessary nutrients for our health.

A nutrient is defined as a nutritious substance or component found in food. There are six major classes of nutrients: carbohydrates, fats, fiber, minerals, protein, and vitamins.

Minerals is a class of nutrients. A mineral is defined as an inorganic substance occurring naturally in the earth and having a consistent and distinctive set of physical properties, and a composition that can be expressed by a chemical formula. Another definition is an element or inorganic compound needed by plants and animals for proper growth and functioning, such as iron or phosphorus.

We can see that the terms nutrient density or nutrient dense food as most commonly used by nutritionists don't reference soil health or soil mineral availability.

Plant Producers Use Nutrient Density to Compare Production Methods and Varieties

In farming and gardening production related discussions of nutrient density, the focus is on whether one batch of kale or broccoli grown in a soil or with a given farming method such as organic farming is more or less nutrient dense than another batch of kale or broccoli grown in a different soil or with a different farming method. Evidence is often cited that the micronutrient content of food analyzed and reported over time (decades) by the USDA has been decreasing. It has been proposed that available nutrients in intensively farmed soils primarily fertilized with N-P-K fertilizers have not maintained cation balance, sulfur, and trace elements.

Recommendations for addressing this aspect of nutrient density include more complete soil analysis, more complete fertilization with additional minerals, and efforts to increase the availability of soil nutrients by increasing soil organic matter and soil biology. As mentioned earlier in the introduction, learning about the effect of production on nutrient density resulted in Katherine seeing that all broccoli is not the same.

The topic of mineral (nutrient) density is also raised as to whether one variety or cultivar of broccoli is more or less nutrient dense than another. It has been proposed that cultivars selected for uniformity, increased fresh weight yield, post-harvest longevity, or other industrial agriculture characteristics may be less efficient accumulators of minerals or bioactive compounds. The quality of seed and how it impacts plant growth is also relevant to consider.

Concerns about nutrient density of a given crop may also focus on whether production methods influence the amount of protein or lipids/oils. The amount of protein present in plants is generally considered to be related to the amount of nitrogen present in the plant. Nitrogen enters the plant as a mineral, but is combined with a carbohydrate to make an amino acid that is a building block for proteins. So how we manage soil and nitrogen availability can influence not just the amount of protein in wheat, which affects the baking quality, but also the protein content of leafy greens.

Plant Producers Interested in Nutrient Density Want to Know How Production Methods Affect Plant Flavor and Fragrance

Beyond nutrients, organic farmers and gardeners and members of the BFA are interested in the flavor of food, which may be related to fragrance or presence of aromatic compounds. These compounds may or may not be considered a nutrient component of food. There is also a class of health-providing compounds known as “non-nutrients.” Flavor and fragrance compounds impact or impart food quality and make food more or less desirable and more or less likely to be consumed.

One of the measures used to characterize flavor components is called “brix.” Brix is measured with a refractometer. Brix readings can be influenced by the concentration of soluble sugars which are typically considered a plus for flavor, or by soluble ions such as sodium or potassium, which are also generally considered a plus for flavor.

Consider the comparison of food transported long distances over several days with freshly harvested local food. If food is quickly and well refrigerated, the nutrients can be as good in transported food as in a local harvest. But it is much harder to maintain flavor over time. This is an area that would benefit from documentation or research to test the effects on flavor. In the meantime, there is a fair amount of experience and anecdotal evidence about what happens when food tastes better.

Plant Producers Interested in Nutrient Density Want to Know How Production Methods Affect Plant Health, Resistance, and Resilience

In discussions within the Bionutrient Food Association, and perhaps among other groups of food producers, another aspect of nutrient density that is considered important is whether production methods or the expression of certain genetic traits can result in plant growth that is more **resistant** to insect infestations or disease infections. Resistance can include the production of biochemical or plant morphological characteristics that repel or exclude insects or diseases. When natural or physical crop



This Red Russian kale was consumed by cabbage worms. Can I prevent the feeding by altering the soil conditions?

protection is our first line of defense, the use of purchased poisons can be eliminated or greatly reduced. There also may be production methods or genetic traits that allow plant growth to be more **resilient** and recover faster from insect infestations or disease infections. It is not hard to find examples of healthy or growing plants showing more rapid recovery from damage.

What is the evidence for plant production or genetics impacting plant resistance? We know that certain varieties are more or less likely to be infested by insects or infected by diseases. Can those mechanisms present in one plant variety be encouraged to be expressed in some similar way in other plant varieties using production methods? It has been proposed that more complex compounds, perhaps non-nutrient compounds, produced in the plant

which make the plant more palatable or desirable to humans are also responsible for making the plant less attractive to insects and diseases. To my knowledge, this is an idea or a proposal that still remains to be demonstrated. I do not know of evidence supporting this perspective.

What seems like a practical test is to grow kale plants using 5 or 10 or 20 different management systems or soil amendments and see if one or more systems produce plants that are consistently less likely to be used by insects as a food source. Will adding vermicompost or other compost or compost teas help? Will soil testing and adjusting the cation balance help? What about trace elements? Will providing more or less water help?

My current perspective is that it will be difficult to develop a system in a series of controlled or managed experiments completed over a short time frame (years). Developing the desired 1) biological/microbial conditions, 2) physical/soil management methods, 3) chemical/mineral balance, and 4) integral or moisture conditions, will likely take time for the conditions to evolve. It may be that this desired condition is more of a vision or target that we aim for but may not often attain? The answer is probably more challenging than “add Epsom salts.”

My experience is that with weather conditions that favor insects and disease and slow plant growth, such as extreme high temperature or soil moisture, it is hard for a plant to be resistant enough to avoid insect feeding. From a different perspective, observation and experience point to permaculture systems that use crop diversity (mixed) and irregular planting patterns to make it more challenging for insects to find their target crop.

It has also been proposed that the biological or microbial activity in the soil and root rhizosphere are involved in the development of biochemical mechanisms in the plant that can result in a plant being more resistant to or resilient from stress imposed by insect feeding or microbial decomposition. The evidence for plants is beginning to accumulate. The biology of compost and compost tea may be a part of developing this resistance to insects and diseases.

Research evidence is becoming available to support the idea that the human gut microbiome can help make people more resistant to or resilient from disorders or diseases. The potential that eating plants with desired or beneficial microbes can improve our health by improving the diversity of our gut microbiome is an exciting idea that will provide

more support for biological and ecological farming and gardening over industrial farming.

Some Other Perspectives From Dr. Alaimo

While talking with her about ideas for this article, Katherine Alaimo introduced me to two other perspectives related to nutrient density that are important to consider.

The first is to also consider livestock and nutrient density. Katherine pointed out that livestock or animals can take inedible (for humans) grass and forage plants and produce a nutrient dense food source such as products like



eggs, meat or processed dairy products like yogurt and cheese. Grasses and vegetation that humans do not digest can be used for grazing and fodder by ruminants, poultry, or other animals, which concentrates the nutrients from the grasses into meat or milk. Infants, children, or elders who can only consume limited quantities of plant material can still get good nutrition. Those that are able to eat and digest larger quantities of vegetables (and fiber) can do so. I had not previously thought of this as a topic related to nutrient density but clearly it is.

Considering livestock in this way is another perspective to justify the sustainability of integrated systems that include crops and livestock. We can also question the efficiency and economics of using grains for livestock production when other sources of feed or fodder are available.

The second perspective Katherine shared is to think about the importance of providing nutrient dense foods relative to the age or health of the consumer. Infants receiving breast milk are getting a nutrient dense food when they are still unable to digest many other foods. Health issues may also limit the diet of children and older adults and make nutrient dense foods more critical to survival. From a humanitarian or community care perspective, we can be thoughtful about who is most in need of nutrient dense foods in our family, our community, and internationally.

Closing Reflection

With the help of Dr. Alaimo, I presented six perspectives related to nutrient density, starting with perhaps the most widely used.

1. Comparing food types and the ratio of nutrients relative to total calories.
2. Comparing the nutrient or mineral concentration of one particular type of food grown with a variety of production methods or different varieties.
3. Comparing the effect of production methods and varieties on flavor or fragrance or complex biochemicals found in one type of food.
4. Comparing the effect of production methods and varieties, including soil biology, on plant health, resistance, and resilience.
5. Considering the importance of animal agriculture as one way of providing nutrient dense foods.
6. Considering the importance of human stage of life and health for prioritizing the need for nutrient dense foods.

The nutrient density of different food types in the first example is not dependent on soil health or soil biology. But the nutrient density of a particular food type as described in the other examples can be expected to be influenced by soil health and soil biology.

If we agree that nutrient density is a topic of importance for organic farmers, gardeners, and

foodies, then it will help the discussion if we can be more accurate and precise about what we mean by nutrient dense food. Have I done anything helpful to bring clarity or depth to the topic? Or is this overthinking the topic?

Katherine is planning to introduce the students in the Introduction to Human Nutrition course to the concepts of soil, soil biology, and their importance to nutrient density and human health on Day 1 of the course. She plans to have them think about the size, firmness, aroma, color, and shine of the broccoli. The impact of soil biology on gut biology will also be introduced on Day 1. The students are going to get a different story than just a few short years ago. And at least some of those students will be looking more carefully at the food and broccoli that they purchase and eat. Will you be ready with an answer when they ask you about the nutrient density of your crops?

I know that my soil management message for farmers and gardeners continues to get simpler and more precise. At the moment my mantra is “**Manage Organic Matter, Microbes, Moisture, and Minerals.**” All four are equally important for success and all four are integrated. Is there something I have left out?

Dr. John Biernbaum is Professor of Horticulture at MSU, was instrumental in the founding and growth of the Student Organic Farm at MSU, has been a member of MOFFA for over 15 years, and served as MOFFA's Chair 2015-2018.

Handheld Meter to Measure Food Quality

by Dane Terrill

Have you ever had a fantasy about having a tool to measure the true quality of fruits and vegetables while shopping in the produce aisle or at the farm market? In the absence of using a refractometer to measure Brix (which produce managers and farm market vendors strongly oppose), the only tools we possess to determine quality are taste and smell (once again, taste testing produce prior to purchasing is frowned on by sellers of these products). That is, until now... well, in the near future! The future of this tool is closer than you might think, thanks to the vision of Dan Kittredge, founder of the BioNutrient Food Association (BFA).

“Dan has been farming organically for 30 years on 24 acres in central Massachusetts, with 2.5 acres of mixed vegetables, eight hoop houses, pastured poultry, and beef. Over these years of farming and growing up a son of a respected figure in the organic

movement, Dan began wondering why, if organic was really the best method of farming, his crops suffered from perennial pest and disease issues. Committed to the principles and ethos of organics, but struggling to learn how to be a better farmer and to more comfortably provide for his family, Dan's own explorations and research led him to the work of such luminaries as Dr. William Albrecht, Carey Reams, Bruce Tainio, Rudolf Steiner, Bill Mollison, Elaine Ingham, and others. Through the integration and application of principles learned from these and others, he began to see results in his crops that spoke to a more coherent way of working with the land.”

Desiring to shout out to fellow organic farmers who also desired to make organic more successful and profitable, Dan began conducting “how to” courses as a project with Remineralize the Earth. In 2008,

the Real Food Campaign was the beginning of this journey. Over years the BioNutrient Food Association evolved and now is a non-profit organization with the mission of “increasing quality in the food supply.” The inherent challenge in this mission is first answering the question of what determines quality.

Fast forward to the BioNutrient Food Association 7th Annual Soil and Nutrition Conference titled, “Grow the Food Movement Around Food Quality.” The allure to this conference included a presenter line-up “next to none!” (View the 2017 conference presentations at <http://bionutrient.org/site/library/soil-nutrition-conference-archive>.) Additionally, there was the promise of the unveiling of the meter that measures food quality.

The writer of this article embraced the opportunity to be an attendee and vendor at this dynamic conference. The pre-conference track included the presentation of the newly developed tool that measures food quality simply with a flash of light. This meter, aptly named the BioNutrient Meter, is small enough to eventually be on a smartphone. Currently, the data collection includes measuring nutrients like vitamins and antioxidants; however, this may change

over time to include additional metrics like flavonoids (flavor) and essential oils (smell).

While this tool is in its infancy in terms of data collection and interpretation, the BFA has partnered with Cornell University, University of Montana, Penn State University, Ohio State University, Washington State University, the Health Research Institute (an advisory board loaded with PhDs), and a bevy of computer software developers to ensure its success. Given proper funding, the BioNutrient Meter could potentially have a huge impact on the way consumers purchase fresh fruits and vegetables. As a producer, this meter could be implemented to determine the effectiveness of different methods of managing soil and plants, ultimately increasing the quality of food produced. The tool is currently limited in availability, but the BFA is developing a custom calibration and plans to make it widely available in time. Stay tuned (<http://bionutrient.org/>).

Dane Terrill is Director of Sales and Marketing at Crop Services International and Flowerfield Enterprises. He has served on the MOFFA Board of Directors since 2012 and has served as Treasurer since December, 2015.

The Power of Nutrient Dense Food

by Lisa A. Middlecamp-Lowder, Ph.D.

During my doctoral studies in holistic nutrition, I had the fortune to meet Sally Fallon, co-founder and President of the Weston A. Price Foundation. I also was required to read Dr. Price's book, Nutrition and Physical Degeneration. Everyone should read it. Through these two blessings, I was introduced to the importance of nutrient dense food. As a result, I have personally benefitted for the last 9 years in so many ways. Through my private practice and by starting a local chapter of the Weston A. Price Foundation, a good number of people in our West Michigan community (and beyond) have benefitted, also.

Physically, my health is superior to what it has been for the last 25 years. As I was aging, I had GERD, arthritis, the general aches and pains we are led to believe are “normal,” and fatigue, as well as the need for glasses. Now, at age 56, I have no fatigue, aches and pains, or digestive discomfort (unless I eat out at a restaurant that sells strictly conventional “food.”) And I don't wear glasses anymore (thank you cod liver oil!) I also have seen numerous clients, both children and adults, improve their physical and mental health by eating nutrient dense foods.

As a Certified GAPS (Gut and Psychology/Gut and Physiology Syndrome) Practitioner, I urge my clients to consume nutrient dense foods and obtain them through our local organic farmers' market. There are no short cuts and nutrient density is mandatory. People are able to heal from rather simple issues like IBS and depression and more complicated ones like infertility and Crohn's disease. It's an incredible thing to watch. It takes discipline and the food must be properly prepared, but it is entirely worth it.

As an added bonus, I, and many others like me, get to know and interact with the local farmers and artisans that are raising and making our food. It's awesome to be able to interact with the families who grow our produce, feed the livestock, collect the eggs, and bake the organic sourdough bread that sustains us. We have a personal connection with these hard working, generous people, and countless friendships have been formed.

Nutrient dense food heals the body and nurtures the community. What a blessing.

Lisa Middlecamp-Lowder, LMSW, Ph.D., is a licensed social worker and holds a Doctorate in Holistic Nutrition. She has a private practice, Thrive for Real, LLC (thriveforreal.com), where she works with clients who want to get their health back through lifestyle choices (usually

without the use of medications). She is a Certified Traditional Cook as well as a Certified GAPS Practitioner and co-founding co-leader of Nourishing the Lakeshore, the Weston A. Price Chapter serving Muskegon, Oceana, and Ottawa counties.

A Naturopathic Perspective to Why Your Cells Need Deep Nutrition For Vibrant Health

by Melissa Malinowski, ND

As a very busy Naturopath and WAPF chapter leader in West Michigan who connects with consumers and the public daily, I wanted to share my thoughts on a topic very near and dear to my heart—the importance of deep nutrition and why you want to offer this to your body.

Why People Want Nutrient Dense Food

People want to not only live longer, but have excellent quality of life. They want to feel amazing, have natural energy, get into that deep REM sleep, be asymptomatic, optimize their genes for future generations, and most importantly have meaningful relationships with themselves and their loved ones. Folks are waking up to notion that you can have the most caring spouse, beautiful children, engaging relationships, an abundance of success, get the promotion, and own your dream house, but if you don't feel well and your health isn't optimal then nothing else matters.

One of the most pressing questions I often hear is, "where have all the nutrients gone?" You can walk into any grocery store and see large, shiny, plump apples, strawberries, and peppers. But sadly, studies have shown that the perfect, beautiful looking produce comes at a price. And that price is nutrient depletion and chemical toxicity, which ultimately can lead to disease within the body.

Accumulating scientific evidence over the last seven decades has substantiated the belief that there has been a rapid decrease in nutrients in crops being produced. Many of the conventional stores offer produce coming from the philosophy of choosing "monster" crops which have been selected for their perfect appearances, sweetness, and impressive size. However, these changes have come at the expense of nutrient density. When you select for yield, crops grow bigger and faster but they don't necessarily have the ability for nutrient creation or uptake at that same, faster rate. In addition, the spraying of pesticides is creating major health challenges for us. I see it weekly in my practice as I

look for chemicals (and specifically glyphosate) in clients.

Optimal Vibrant Health—How Do We Get It?

Dr. Weston A. Price's world-renowned findings led to the conclusion that those eating a nutrient dense diet were the ones who had vibrant optimal health. As a dentist in search of the causes of the dental decay, compromised immune systems, chronic infections, and physical degeneration that he observed in his dental practice, he turned from test tubes and microscopes to studying evidence among human beings in their native environments. The world became his laboratory. Price traveled the world over in order to observe people living in tribes and villages everywhere on the planet.

Dr. Price was able to formulate three basic dietary principles as a result of his pioneering investigations of healthy, non-industrialized people. They are as follows:

1. The diets did not contain any processed or devitalized food. There were no refined or artificial sweeteners, white flour products, processed vegetable oils, trans-fats, pasteurized or homogenized milk, canned foods, microwaved foods, irradiated foods, industrial additives, pesticides, herbicides, or synthetic vitamins in healthy traditional diets.
2. All healthy traditional diets contained animal foods of some kind; none of the healthy peoples Dr. Price studied followed a vegan diet.
3. The diets were nutrient-dense, containing very high levels of vitamins and minerals. His most surprising finding was the fact that primitive diets contained extremely high levels of three vitamins found only in animal fats—vitamins A, D, and a third fat-soluble vitamin he labeled "Activator X," now believed to be vitamin K2. Foods containing these vitamins include oily fish, fish heads and fish organs, fish eggs, fish liver oils (such as cod liver oil), shell fish, insects, and butter, egg yolks, organ meats, and fats from animals raised

in the sunlight and eating green grass. Traditional peoples considered these types of foods as sacred, recognizing them as vital to good health and being actively sought after and deliberately consumed.

Source: <https://www.westonaprice.org/>

Have Others Noticed a Change in Their Families' Health When Eating For Nutrient Density?

As a Naturopath, I believe that most individuals require nutrient dense nutrition to restore health and healing to their body. Certainly those that are already in a state of disease, including depression, autism, cancer, chronic fatigue, fibromyalgia, diabetes, any auto-immune condition, and heart disease, just to name a few.

When you eat nutrient dense foods, healing occurs and helps power up the 70 trillion cells that make up your entire body and thus assists in the removal of toxins, regulating of hormone function, and controlling of inflammation, which is the 21st century cause of a new millennium of disease.

A deep nutrient diet helps achieve detoxification because it helps to heal the cell membrane. We know now that a cell's membrane is like its brain. True detoxification must occur at the cellular level. Nutrients must move in and toxins must come out in order for a cell to be clean and healthy. The cell membrane is the gate keeper (again, the brain) that allows this to occur. The standard American diet (SAD) and our toxic environment can greatly cause the cell membrane to become inflamed. When the cell membrane becomes inflamed, the above process is hindered and the cell becomes toxic, which can ignite a disease process. To restore and heal a toxic cell, you must remove all toxins along with inflammatory factors such as processed and chemical laden substances, as well as sugar and everything that turns into sugar. Sugar becomes a buffet for inflammation and pathogens.

The amount of physical and emotional change I see in our WAPF attendees and in my clients once they choose quality materials for rebuilding their body is astounding. For example, I see a lot of gut dysbiosis, chronic infections (including hidden dental issues), depression, ADD/ADHD, allergies, hormone issues, and many autoimmune conditions. And literally in a matter of weeks after switching to nutrient dense foods, these concerns start to diminish.

So, What Can We Do To Assure a Nutrient Dense Diet?

As consumers, we can no longer wait around for the food supply to be fixed for us! We need to take control of our own health and become the best advocates for our family, including our pets; they need fresh, nutritious food as well. Here is what we need to do:

1. Support local farms.
2. Buy heirloom produce when possible.
3. Buy organic when possible.
4. Eat plenty of fats with fat soluble activators including Vitamins A, D, and K.
5. Eat plenty of grass-fed meats.
6. Add superfoods to your diet.
7. Join your local Dr. Weston A. Price foundation; they specialize in offering you local resources to locate nutrient dense food and local farms.
8. If you can't find good quality nutrient dense foods locally, there are a lot of great farm-to-door services available on-line.

Deep Nutrient Diets and Their Impact on Human Health

Food is your fuel and the constituents that make up the food literally become the rebuilding and repairing materials for not only your tissues but your cells, including the powerhouses or batteries of the cells (the mitochondria). It's not debatable. For those eating a processed diet, the body can only sustain that lifestyle for so long. Looking for vibrant health? Look no further than nutrient dense food.

Melissa Malinowski is a Licensed Doctor of Pastoral Science & Medicine (PSc.D), Naturopath, Paleoista, WAPF Chapter Leader, Dog mom, Truth Speaker, Researcher and Blogger.

Melissa helps moms, dads, teens, toddlers, babies and pets lead healthier and more natural lives. She offers BioScan health assessments for clients in her Grand Rapids, MI office. These assessments help detect ROOT cause issues such as heavy metals, chemicals, molds, parasites, hormone imbalance, EMF toxicity, emotional traumas and much more, and then she helps to correct those stressors. Constructing a nutritional meal plan including nutrient dense local foods is a critical part of her wellness protocol. Melissa believes many people and pets are unnecessarily suffering from nutritional deficiencies and toxicities that are not being addressed. When your health is optimal and you're thriving you become a better version of yourself and therefore have the ability to contribute more to loved ones, sentient beings and the rest of the world around you.

And just like most of you, she's healing her body with food! She's happily sharing her experience and knowledge (and recipes) with clients and readers, so you can heal your body, too. She'd love to share her story and journey with you. Feel free to follow along at www.integrativenutritionaltherapies.com.

The Farm Touring Begins

by John Hooper

MOFFA has embarked on an ambitious and long discussed endeavor in 2018—to begin a yearly cycle of farm tours. Visiting the multitude of ecologically sustainable and organic farms in our state will offer unique, one-of-a-kind settings and a wonderful shared experience for all participants.

For the first in our Summer Farm Tour Series we were absolutely ecstatic to be visiting Lee and Linda Purdy—Westwind Farm and Milling Co. in Swartz Creek. This land has been in the Purdy family for two generations, since 1953. With sizeable acreage and a constantly expanding entrepreneurial vision, Linda and Lee have had a significant impact and voice in Michigan's organic community for over three decades. They are all about community and really know how to stage an event, as witnessed by the accompanying photos.



The tour involved an early afternoon gathering and introductions at the Purdys' residence and barns with the 60 plus participants, followed by a wagon ride to “the great oak” for a prepared lunch featuring

an eclectic array of food from the gardens, fresh breads, and homemade lemonade and ice cream. Old friends and new spoke of topics of the day as we gathered under the outstretched arms of a 300-year-old oak tree that has for decades offered its shade and repose to generations of farmers. Post lunch Lee and Linda spoke of the history of their farm, past experiences, and visions for the future. Others from the gathering also spoke of pertinent events or relevant projects which would be of interest to the group.

A wagon ride back to the main buildings then featured tours of the gardens (Lee and Linda grow

for their weekly CSA) and of the mill that Lee is putting the finishing touches on. For 15 years the Purdys operated a 150-year-old mill and bakery in Argentine, a fair distance from the farm. Once they made the decision to part with that property they firmly rooted themselves at the homestead where I suspect they are entrenched for the future!



Even with the day's 95-degree heat everyone seemed to totally enjoy the experience; many lingered long after to continue conversations and to exchange contact information. There was a small table set up with copies of both the MOFFA Farm Guide and the new publication *The Organic Movement in Michigan*, as well as information on Michigan Organic Food and Farm Alliance and our partner organization in this series of tours the Ohio Ecological Food and Farm Association.

A grand day for all involved and a very auspicious beginning to our Farm Tour Series and what we believe will be an important facet of MOFFA's outreach to the organic community and beyond. Check us out at www.moffa.net.

SPECIAL NOTE: See the next MOFFA newsletter for reflections on the second tour of the MOFFA Sustainable Farm Tour Series, which took place in Plymouth and included Gateway Farm and Plymouth Orchards & Cider Mill.

For over 40 years John Hooper has been an advocate and practitioner of the organic method of food production. He has been a member of MOFFA's Board of Directors since 2009 and served as its Chair from 2011 through 2015.

2018 Farm Tour Series

MOFFA sponsored a series of three Farm Tours in 2018, in collaboration with OEFFA's collection of more than 30 farm tours, workshops, and special events. Our first tour took place on July 15th at Westwind Milling, as John describes above. The second was this past Thursday, August 30, at Plymouth Orchards. We hope you'll join us for the remaining tour at the Zilke Vegetable Farm in Milan on September 16. For more information and to register, visit moffa.net/farmtours-2018.html.



Diversified Vegetable Farm with Commercial Kitchen

[Zilke Vegetable Farm](#)

Milan, MI

Sunday, Sept. 16, 2:00 - 5:00

No cost

Policy Corner

by Julia Christianson

Probably the most important thing on the policy horizon for organic farmers and consumers at the moment is the makeup of the 2018 Farm Bill which is due to be enacted at the end of September. We'll say a few words about that below, but first I want to share the news that this past March seven nonprofit organizations, led by the Center for Food Safety, sued the USDA and Secretary Sonny Perdue,



challenging its decision to withdraw the organic standards for animals on certified organic farms, called the "Organic Livestock and Poultry Practices"

rule (which had been scheduled to take effect in April of 2017). This month, the federal court for the Northern District of California issued a decision concluding that the Center for Food Safety's (CFS's) legal challenge to the U.S. Department of Agriculture's (USDA's) withdrawal of organic animal welfare provisions could proceed. The Court's decision rejected arguments from USDA that the nonprofits did not have legal standing to challenge the withdrawal decision. The Court held that the withdrawal of the rule that set organic animal welfare standards injures the organizations' members because it "undermines the organic label" for consumers. "The National Organic Coalition is thrilled to see our legal challenge move forward," said Abby Youngblood,

executive director at the National Organic Coalition. "The Organic Livestock and Poultry Practices rule represents more than a decade of work to clarify and improve animal welfare standards in organic and has the support of thousands of stakeholders, including farmers, consumer advocacy groups, and other members of the organic industry.

When Congress reconvenes in September, the House and the Senate will engage in discussions to reconcile the two separate Farm Bill proposals in anticipation of passing a new Farm Bill by the end of the month. The version of this bill passed by the House earlier this year would dismantle many programs that are centrally important to organic farmers and those who are concerned with environmental issues, as well as many other groups. The Senate version, while not perfect, does maintain or increase the resources to be devoted to organic and family-scale farming.

The Organic Farmers Association suggests that we make one last effort to contact our Senators and Representatives and ask them to encourage the Farm Bill Conferees to include the following in the final conference committee bill:

- The Organic Farmer and Consumer Protection Act as included in both bills, which improves the oversight of global organic trade, creates a level playing field for American organic farmers, and establishes a better system to ensure the integrity of organic import supply chain. Our

policy poll shows 100% of our members support this effort;

- Increased funding for organic research, as written in the Senate bill: The Organic Extension and Research Initiative with full funding of \$50 million by 2023. Again, our policy poll shows 97% of our members support this effort;
- Re-authorizing the Cost-Share Program and providing \$11.5 million of mandatory funding which is the Senate language (89% of our membership support this position); and
- No changes to the operation of the National Organic Standards Board (NOSB). This requires

eliminating changes to the NOSB presently included in both the House and Senate bills.

A more detailed explication of the issues and the congresspersons involved is available from the National Sustainable Agriculture Coalition: <http://sustainableagriculture.net/blog/farm-bill-conference-committee/>.

Julia Christianson is MOFFA's "very part-time" Administrative Coordinator, and in her capacity as a MOFFA member serves as the volunteer Chair of MOFFA's Policy Committee.

Organic Intensives Announced for 2019

On January 12th MOFFA will offer the fifth annual Organic Intensives educational event. This year will feature a choice of four topics for participants to explore in depth.



Healthy Organic Livestock

Matt Shane, organic sheep farmer and MSUE livestock educator will discuss organic monitoring and treatment to maintain a pastured flock of small ruminants in

optimum health in an organic system. Karry Trickey, NRCS district conservationist will cover soil, soil biology, and pasture management techniques for rotational grazing. Join other livestock producers to learn more about grassland and ruminant management for health.



Advanced Organic Soil Management

We all manage soil, and we all strive to improve it year by year. But often our efforts amount to a scattershot approach, addressing one aspect in one year, and switching

gears the next without evaluating the effectiveness of our interventions, or continuing to monitor the state of the soil. In recent years there have been some spectacular increases in our knowledge of the life of the soil and the factors that keep it healthy and productive. Dane Terrill will be joined by several Michigan farmers who have studied the soil food

web in depth to work with participants in small groups and dig into the practices that can have the most effect on individual participants' soil conditions.



Technology in Organic Field Crops

Today's organic field crops such as corn, soybeans, dry beans, soft wheat, and other small grains bring a premium and growing the best crop possible is

in the best interest of the organic farmer. This OI introduces the producers to basics in Precision Planting, Camera Guidance Cultivation, and Advanced Weed Management. These tools are helping organic farmers get their crop off to a better start, cultivate to closer tolerances, and do better field work. Although these tools may have to go on the wish list, organic growers should make themselves aware of the newest technology.



Organic Mushroom Cultivation

Learn how to grow gourmet mushrooms from mushroom scientist Chris Wright and long-time mushroom grower Michael Levine. Adding mushrooms to your

diversified farm or backyard garden can be rewarding both financially and nutritionally. Chris and Mike will share their expertise and teach how to inexpensively grow oyster, shiitake, morel, and other lucrative, high demand fungi. Presentations will

include a brief overview of fungal biology and then focus on cultivating mushrooms via log, straw, and mushroom bed production systems. The program will include hands-on demonstrations.

For the second year, Organic Intensives will take place at the Plant and Soil Sciences building at 1066 Bogue St. on the MSU campus in East Lansing. For more information visit <http://moffa.net/oi-2019.html>.



The Sustainable Agriculture Research & Education Program (SARE) has released videos, podcasts, and posters from its 2018 [Our Farms, Our Future Conference](#). This represents all of the conference materials from the three-day event which featured over 35 different breakout sessions, bringing close to 110 speakers together to share their diverse ideas about the future of sustainable agriculture.

Links to this material as well as information on a wealth of other material and events can be found on the [Educational Opportunities](#) page of MOFFA's website, www.moffa.net/.

From the Editor

The summer has flown by, as it always seems to, and this newsletter really crept up on me even though I have been looking forward to seeing it unfold all year. The theme of this newsletter is nutrient dense foods, which seems to be on the tip of everyone's brain these days. [Food, Farming & Health](#), the latest work by Dr. Vandana Shiva, tackles the subject of health as a continuum from soil to plant to humans. The interview in the July issue of [Acres U.S.A.](#) was with Diana Rodgers (dietician and author) and discussed improving health and reversing chronic conditions with food nutrition. Some contributors to this newsletter shared their views of and experience with the benefits of true nutrition in food. And as a farmer's market seller, I personally know how important nutritious food can be to customers. It is a hot topic and an interesting one, as well as a critically important one.

The arrival of autumn always brings with it reflections on the year that has past and thoughts of

the future. It is highly appropriate, then, that the theme of the final MOFFA newsletter of the year is "Moffa Moving Forward." The world we are working, living, and eating in has changed to an incredible degree in many ways and continues to do so. What does this mean for the organization? How should its energies be directed? What are the missing pieces of the puzzle? And what are we going to do with all of this change? IF YOU HAVE ANY THOUGHTS, INPUTS, OPINIONS, OR WISHES CONCERNING THE FUTURE OF MOFFA, PLEASE CONTRIBUTE TO THE NEWSLETTER AND LET US KNOW. YOUR IDEAS COULD BE PART OF WHAT IS MISSING ([email me](#)). Thank you to all who contributed to this newsletter, and to those who have taken the time to read it and support MOFFA.

Leah Smith
MOFFA Newsletter Editor

MOFFA News

Farm Guide – MOFFA's Guide to Michigan's Organic and Ecologically Sustainable Growers and Farms now lists 151 farmers and growers; 98 of them are certified organic. The guide exists primarily online, but the 2018 paper version was published earlier this year and is available for purchase at moffa.net/farm-guide-book.html.

Board – We are still actively seeking a member from the southeastern area of the state, ideally someone who is involved in urban agriculture. If you are a MOFFA member who would be interested in serving on the board, please [let us know](#).

Organic Connections Newsletter – We continue to be interested in featuring new voices in the

newsletter. If you are interested in contributing, or if you have a suggestion about content or can recommend someone who would be interested in contributing, please [contact Leah](#), our newsletter editor. If you're not interested in writing an article, please consider contributing photos of your farm or your harvest; we're always looking for more illustrations.

Sponsors – Beginning in 2018, and continuing for the long term, we hope, MOFFA is accepting

Sponsorship from organizations and individuals who are willing to demonstrate their support of our mission with a financial contribution. The change from soliciting sponsorships specifically for Organic Intensives will enable us to increase our activities throughout the year. Please take a moment to view the logos of those who have already pledged their support below and let them know you appreciate their sponsorship. If you are interested in becoming a sponsor for 2018, please [email us](#) or view the [sponsorship page](#) on the website.

WHY JOIN MOFFA : To position yourself and every dollar you donate toward spreading a wholesome, just, ecologically focused Organic ethos across all of our local Michigan communities.

MOFFA Sponsors 2018

