Farming for Health

Food Quality, Nutrient Density & Crop Brix

by Dr. Arden Andersen

As the 21st century begins, obesity, cardiovascular disease, diabetes, cancer, Parkinson's and Alzheimer's have become household names, affecting over 50 percent of the American and Americanized population. Crime, deviant behavior, cultish communities, fear, hatred, suicide, depression and anti-social behavior have become so common that much of society is completely desensitized to such behavior.

Rudolf Steiner nailed it well in 1922 when questioned by Ehrenfried Pfeiffer as to why, in spite of all the teachings, seminars and lectures espousing a holistic approach to life and health, so few people grasped these concepts. Steiner's response was succinct: *food today does not contain sufficient nutrition to allow the brain to work with a more spiritual/holistic awareness.* Dr. Charles Northern, a gastroenterologist, read into the Congressional Record in 1936 that the nutritional value of our food correlated to nutritional decline in the soils and to the disease states experienced by the consumer. In fact, nutrition in our food has steadily declined since 1922, as evidenced by USDA food-testing data. The total number of calories consumed by Americans has increased significantly, but the actual nutrition consumed has declined. Americans are eating hollow calories.

The organizations Beyond Organix and Real Food Campaign are working to evaluate food for actual nutritional quality. This means having your food product tested by any lab of your choice, the same test done on a standard tissue or petiole analysis, but in this case performed on the food itself, whether fruit, nut, grain, milk, meat, egg, vegetable or fish. Compare these results with the 1940 or earlier USDA nutrient analysis data on that crop. The short list for testing may include calcium, magnesium, selenium, iron and perhaps copper, manganese and zinc. (Yes, you can add omega oils, vitamin C, A, D and other traces to the test, but then that gets more expensive and is beyond the standard "tissue test.")

Regardless of the year we use as a standard, 1940 or 1970, it will be better than today's values and a goal for which the farm should strive. Unfortunately, testing costs money, time and labor, but a very simple and inexpensive field test for nutrient value of a crop is the brix reading of the sap or juice measured with a refractometer. This is a test that can be done daily and correlates well to crop nutritional quality. Every farmer should have a refractometer and use it regularly, know what his/her crops are running, and if the brix values are not improving, then change the fertility program.

There are those, including some consultants, who do not understand what the sap/juice brix reading means or how to feed a crop to get brix to increase. They tend to believe that the soil test prevails over all else and seek to find the perfect soil test report. As a result they cannot seem to grasp the brix principles. Brix measurements using a refractometer for sap/juice is about fundamental biochemistry, fundamental photosynthesis unique to plants. Only plants take in carbon dioxide and water in the presence of chlorophyll and sunlight to manufacture *sugar*.

Everything the farmer harvests comes from this sugar — every bushel, ton, box or carton of yield. This is basic, elementary botany. The farmer's task as a health promoter largely rests on raising crop brix values to the good or excellent range as defined by Dr. Carey Reams (these values are available at *www.aglabs.com* or *www.highbrixgardens.com*).

Moving from a standard chemical system to a biological system can initially be as simple as following a universal recipe to establish some base fertility — but to move from this base to superior quality, yield and profitability, the "art" of farming must be employed to raise crop brix values (12 or above for the growing crop). This means mid-season soil and crop testing, field assessment and prescription nutrition specific to crop needs, growth, and physiology.

FARMING FOR HEALTH

Growers who think foliar applications are not valuable are missing a huge opportunity for crop improvement. Plants in nature are not limited to root feeding. The poorer the soil nutritional balance, functionally, the less efficient will be the foliars. The better the soil nutritional balance, functionally, the more efficient will be the foliars. Therefore if foliars aren't working for you, either change your soil program or change the formulation/timing of your foliars. Specifically, foliars don't work well if the functional calcium is insufficient *and* the foliar product isn't the right mix. Researchers at Michigan State University in the early 1960s using radio-labeled nutrients demonstrated that foliar applications of nutrients are up to 10 times as efficient as soil application of these same nutrients on a pound-for-pound, kilogram-for-kilogram basis.

I am ever amazed to observe experienced vets such as Dan Skow, Paul Detloff, Hugh Karreman and Ed Sheaffer walk into a barn and, without any lab testing, make skillful, extensive assessments and recommendations for improving animal health and production. Generally, only when they are stumped do they turn to laboratory testing. In medicine it is the same situation. The

history and physical exam are 90 percent of the diagnosis.

It is critical to one's success to understand that we get no kudos or style points for fertilizing just to make the soil test report look good. We need to fertilize to make the *crop* look good, to raise its brix and nutrient value. Remember, the point is that we are growing food for people, not soil test reports for the archives. So often I have had blood tests, X-rays and MRIs on patients that were read as normal, yet the patient was sick or in pain. As a patient, do you prefer the doctor treat the lab tests or treat you, the patient? The same holds for soil tests and crop performance.

Brix readings of a crop sap or juice is part of the field observation package. It is part of evaluating the "patient." One could taste the juice or sap, and if well trained and aware, nail the brix reading without a refractometer. Taste and palatability are key indicators to crop nutritional quality. Most of us aren't at that skill level in all crops, of course, so we use a refractometer to measure the brix. Regardless of one's preference in soil testing, follow whatever fertility practices are necessary to raise the crop brix readings. The brix will correlate to crop health and nutritional quality.

When we get into the discussion of growing 100 bushels of soybeans per acre, the "100 Bushel Club," farmers and consultants wonder how it can be done — because it *has* already been done, they know it is possible. Functional nutrient levels/balance in the soil are the key to this accomplishment, which parallels microbial activity and humus levels. Under a functional system of agronomy, a

Albrecht & Reams — Developing an Idea

by Dr. Arden Andersen

Dr. William A. Albrecht did his work and developed his testing program for one reason: to get results in the field and barn. It's not the test that counts, it's results in the field that count. Albrecht's approach worked in Missouri in the 1940s because it was a comprehensive approach, not an abiotic, inorganic mineral recipe as recommended today by most conventional agronomists. What is really missed by folks that hang their entire hat on laboratory testing — and laboratory testing certainly has its place and benefits — is that both Albrecht and Reams *always* added microbial inoculants into their mineral fertilizer programs.

Consider the fact that in the 1940s in Missouri, where Albrecht worked, practically every farm was a mixed farm, meaning it had cattle, pigs, chickens and crops. Manure was thus an assumed given on every farm. Manure is 50 percent microbiology, and the manure of 1940s livestock was much different than today's. It wasn't contaminated with antibiotics, anti-parasitic drugs or synthetic hormone compounds. Mineral levels of forages then were higher, thus the manure was more mineralized. Manure in the 1940s was an inoculant. Further, and this is key, our soils today have been hit by herbicides, insecticides, fungicides, and salt fertilizers. The U.S. Geological survey has shown that pesticides are even in rainwater, so *no* farm is exempt from some of this pollution. Farmers must be more deliberate and aggressive with inoculation, microbial foods and nutrition in order to turn around soils and get crop brix to increase in today's environment.

Reams, working in Florida sand, didn't have the benefit of all the mixed farms and inoculating manure. He recognized that the Albrecht/CEC test lacked something under those conditions if the farmer was to solve the weed, disease, and insect issues, nor was it successful enough in raising brix readings in the citrus and melon crops so prevalent in the state. Failure was not an option, so Reams pursued solutions. His most profound statement, S*ee what you look at*, is a testament to his understanding that results in the field — brix readings of the crop which correlate to nutrient value of the crop, weed and other problems, crop yield and palatability — *all* correlate to soil nutrient functionality, but not necessarily to soil test reports, including CEC or Albrecht tests.

Reams learned from trial and error what to do to get brix readings to increase and subsequently sought a soil testing system that better reflected the real-world fertilizer requirements for high brix crops. This quest led him to Dr. Morgan at the University of Connecticut and the Morgan testing protocol. Reams further revised this protocol because it still did not fully reflect calcium and phosphorous functionality correlated to crop brix and production. As good as he believed the Morgan test to be, he still relied mostly on field observation, brix readings and actual crop taste for his recommendations.

Further, Reams always recommended chicken manure in his programs for inoculation and steer manure for carbon (again, manure in the 1940s was different than manure today). Dr. Reams recognized that as crop brix readings increased he would see soil biology and soil quality improve, and the Reams and Albrecht test reports would come closer together. Microbial activity was the key.

HEALTH & HEALING NEWS

Chicago Bans BPA

Chicago has become the first city to ban the sale of baby bottles and sipping cups made with bisphenol A (BPA). The proposal by Alderman Manuel Flores was adopted 48-0 and will take effect in January 2010. "The FDA continues to be recalcitrant and very slow about taking any action on BPA," he said. The measure requires the signature of Mayor Richard Daley, who has already voiced his support. The city now joins the state of Minnesota and New York's Suffolk County, who have done the same.

Irradiated Foods & Myelin

Myelin is a fatty insulator of nerve fibers. Its degradation leads to various neurological disorders, such as multiple sclerosis. Researchers at the University of Wisconsin at Madison fed a group of pregnant cats a diet of irradiated food for three to four months. The cats developed severe demyelinization of the central nervous system: movement problems, loss of vision and paralysis. Restored to a regular diet, they slowly recovered with all systems once again functional, albeit with a less thick sheath of myelin than the original. "The fundamental point of the study is that it proves unequivocally that extensive remyelination can lead to recovery from a severe neurological disorder," said scientist Ian Duncan. "It indicates the profound ability of the central nervous system to repair itself." While the body's self-reparation capabilities are indeed a constant source of amazement, it seems equally amazing that little attention was paid to the *cause* of this debility in the first place.

Breast Cancer in the U.K.

The latest figures from Britain show that the number of women dying from breast cancer has dropped to a record low: under 12,000 a year for the first time since 1971. Breast cancer is the most common form of cancer in the United Kingdom, affecting one in nine women. Among American women, 40,500 died from the disease in 2008, and the National Cancer Institute estimates that one in eight women will be diagnosed with it. The British report does not speculate as to reasons for the drop, but Elaine Hardman of Marshall University in Huntington, West Virginia, recommends walnuts as part of a healthy diet. Her research has shown that the omega-3 fatty acids, antioxidants, and phytosterols in the nuts reduce the incidence of breast tumors in mice.

Grow Your Own Air

The government of India has rated the Paharpur Business Centre as the healthiest building in Delhi. The study also found that there is a 42 percent chance that blood oxygen will increase by 1 percent if a person remains in the building at least 10 hours. How can this be? The 50,000 square meter building is 20 years old, has 300 business occupants — and houses 1,200 of what are judged to be the finest air-cleaning plants to be found.

The Areca Palm *(Chrysalidocarpus lutescens)*, "the Living Room Plant," does its best work during the day; Mother-in-Law's Tongue *(Sansevieria trifasciata)*, "the Bedroom Plant," converts CO_2 into O_2 during the night; and the Money Plant *(Epipremnum aureum)*, "the Specialist Plant," is excellent for removing formaldehyde and other volatile organic compounds (VOCs) from the air. For an experiment, all fresh air and exhaust were sealed from the building for six weeks — the air quality inside the building was still better than outdoors. The plants have been tested for 15 years in the building, and air quality is monitored every day. The latest reading: micrograms per square meter of suspended particulate matter (SPMs) in the building were 68; in outdoor Delhi, 398.

holistic system, 200-bushel soybeans, I predict, will be a reality within three years in the Midwest. Crop brix, the measure of the sap sugar, correlates significantly to yield.

Yes, we have a lot of human health and environmental challenges before us in the 21st century. Every one of them is directly or indirectly connected to food quality, which really means nutritional value of the food — and this nutritional value is a changeable, correctable challenge. Crop brix is an earmark for how well the farmer is improving the nutritional value of the crop. Use it and change your management accordingly to raise crop brix. Those who say it cannot be done had better get out of the way of those who are doing it!

Arden Andersen, Ph.D., D.O., is the author of *Science in Agriculture* and *Real Medicine, Real Health*, both of which are available from the Acres U.S.A. bookstore. He can be contacted at Crossroads Healing Arts, 21764 Omega Court, Goshen, Indiana 46528, phone 574-875-4227, website *www.bornclinic.com*.

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