

Healthy Soils
Healthy Plants
Healthy People
VOL. 11 | SUMMER
Love Mother Nature

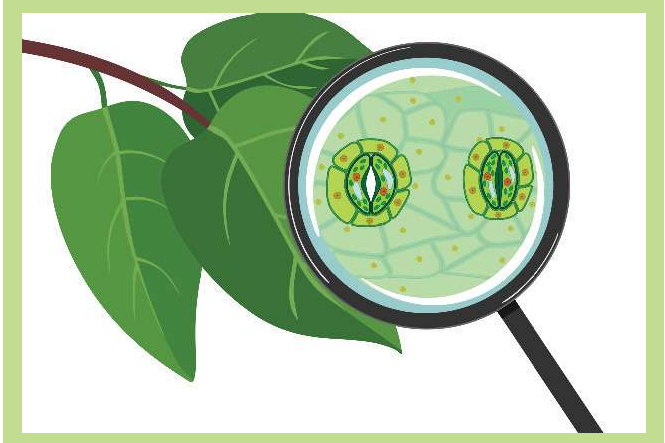
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HOW TO KEEP YOUR PLANTS HAPPY DURING THE SUMMER BY MIKE SERANT



Plant leaves, like the human skin, have openings on them. In humans we call these openings pores, in plants we call them stomates which are microscopic passageways. These conduits translocate material in and out of the plant, breathing in carbon dioxide and releasing oxygen. As they breathe in, they can take other material with them like plant food. Once the plant food is inside the plant, it is absorbed throughout the plant very quickly.

For all of us involved in promoting healthy plant life, we can use foliar sprayed Organic nutrients for rapid restoration or boosted plant health. Foliar spraying, once the application equipment is ready, is very easy to do.



Simply spray to the point of drip then move to the next section of plants. For a 1,000 sq ft area of turf, ornamentals, flowers, food crops, etc. you are allocating maybe 5 minutes of time. Anything extra that hits the ground will be taken up by the roots. ALL Organic liquids are very inexpensive to use. The best nutrients to buy are quality **Organics like Molasses, Humic Acid, Fish and Seaweed because of their carbonize nature, mineral content, plant hormones and vitamins.** Plus, unlike chemical fertilizers, they are low in salts and will not burn.

Often, we are asked when the best time is to apply foliar sprays and for many of us, it's whenever we have time.

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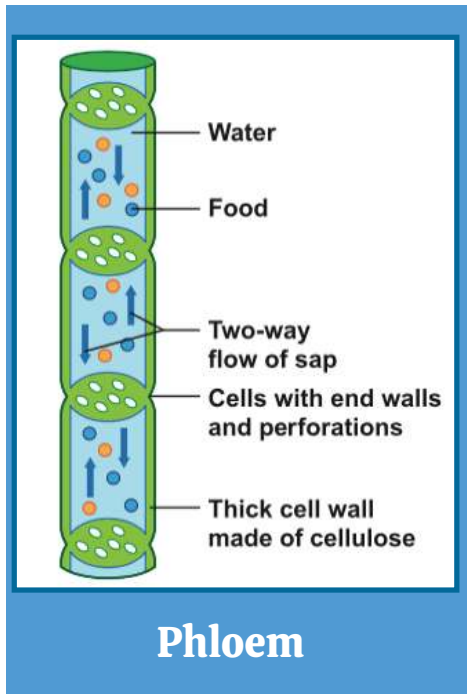
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HOW TO KEEP YOUR PLANTS HAPPY IN THE SUMMER

Mike Serant | Owner of MicroLife Organic Fertilizers | microlifefertilizer.com

There is the natural biological function of the plant called the **phloem** process in which plants have a great propensity to translocate material. Plants do this mainly in the morning and late afternoon.



So while mornings and afternoons are preferable, **we have observed great results at any time.** The main goal is to get plants the building blocks they need especially in times of heavy stress like summer heat, magnified by drought. When plants are under heavy stress, they use up their reserves to cope with the challenges. When their reserves are depleted or low, plants will suffer greatly which can lead to plant collapse and more susceptibility to pest insects and diseases. You can use foliar sprays to quickly replenish their reserves of minerals and hormones.

Now something else that is brand new and hugely exciting comes from research at Virginia Tech. Using a Fluorescence device to measure plant photosynthesis efficiency, we have found that certain foliar sprayed material like molasses, seaweed, fish and humic acid will increase photosynthesis efficiency by 30% - 40%!

With increased photosynthesis, more food is made for the plant and more food goes through the root system to feed the beneficial microbes. **That is a giant WOW.**

As your time permits, foliar spray your plants every 2 - 4 weeks.

Foliar spray to increase photosynthesis!



Add the following to a gallon of water:

- 2 oz Fish Hydrolysate
- 2 oz Humic Acid
- 1 oz of Seaweed
- 1 oz of Molasses

In summary, it is always the right time of the year to foliar spray your plants with Organic nutrients. Especially during

the summer, we need to show our plants extra love so they can have greater resilience for handling stress and the ability to be more efficient with their photosynthesis process.

Mike

Mike Serant
Owner & Manufacturer
of MicroLife

FRUITS AND VEGETABLES ARE LESS NUTRITIOUS THAN THEY USED TO BE

Stacy Colino | National Geographic | nationalgeographic.com

Mounting evidence shows that many of today’s whole foods aren’t as packed with vitamins and nutrients as they were 70 years ago, potentially putting people’s health at risk.



As you gaze across the rows of brightly colored fruits and vegetables in the produce section of the grocery store, you may not be aware that the quantity of nutrients in these crops has been declining over the past 70 years.

Mounting evidence from multiple scientific studies shows that **many fruits, vegetables, and grains grown today carry less protein, calcium, phosphorus, iron, riboflavin, and vitamin C** than those that were grown decades ago.

Nutrient decline “is going to leave our bodies with fewer of the components they need to mount defenses against chronic diseases—it’s going to undercut the value of food as preventive medicine,” says David R. Montgomery, a professor of geomorphology at the University of Washington in Seattle and co-author with Anne Biklé of *What Your Food Ate*.

Scientists say that **the root of the problem lies in modern chemical agricultural processes** that increase crop yields but disturb soil health. These include fertilization, and harvesting

methods that chemical pesticides disrupt essential interactions between plants and soil fungi, which reduces absorption of nutrients from the soil. These issues are occurring against the backdrop of climate change and rising levels of carbon dioxide, which are also lowering the nutrient contents of fruits, vegetables, and grains.

Experts say it’s important to keep these declines in perspective and not let this news deter you from eating a variety of fruits, vegetables, and whole grains to maintain your health. But they hope the results will spur more people to care about how their food is being grown.



The Point of Diminishing Returns

One of the largest scientific studies to draw attention to this issue was published in the December 2004 issue of the *Journal of the American College of Nutrition*. Using USDA nutrient data published in 1950 and 1999, researchers at the University of Texas at Austin noted changes in 13 nutrients in 43 different garden crops—from asparagus and snap beans to strawberries and watermelon.

FRUITS AND VEGETABLES ARE LESS NUTRITIOUS THAN THEY USED TO BE

Stacy Colino | National Geographic | nationalgeographic.com

These **raw fruits** and **veggies** showed **declines in protein, calcium, and phosphorus**, which are essential for building and maintaining strong bones and teeth and for proper nerve function. There were also dips in iron, vital for carrying oxygen throughout the body, and in riboflavin, which is crucial for metabolism of fats and drugs. Levels of vitamin C—important for the growth and repair of various tissues in the body and for immune function—also fell.

Further studies since then have backed up the case that nutrient levels are dissipating. Research in the January 2022 issue of the journal *Foods* found that while most vegetables grown in Australia had relatively similar iron content between 1980 and 2010, there were noteworthy drops in certain veggies. Declines in iron content, ranging from 30 to 50 percent, occurred for sweet corn, red-skinned potatoes, cauliflower, green beans, green peas, and chickpeas.

Grains have also experienced declines, experts say. A study in a 2020 issue of *Scientific Reports* found that protein content in wheat decreased by 23 percent from 1955 to 2016, and there were notable reductions in manganese, iron, zinc, and magnesium, as well.

The alarming declines have ripple effects for meat-eaters too. Cows, pigs, goats, and lambs are now feasting on less nutritious grasses and grains, Montgomery says, which in turn makes meat and other animal-derived products less nutritious than they used to be.



A Problematic Perfect Storm

Multiple factors are contributing to the problem. The first is modern farming practices that are designed to increase crop yields.

“By learning to grow plants bigger and faster, the plants aren’t able to keep up with absorption of the nutrients from the soil or able to synthesize nutrients internally,” explains Donald R. Davis of the University of Texas at Austin. The retired chemist and nutrition researcher was the lead author of the eye-opening 2004 study, as well as an author on subsequent papers on this subject.

Higher yield means nutrients from the soil must be distributed across a greater volume of crops, so in effect, the nutrients these fruits and veggies produce are being diluted.

FRUITS AND VEGETABLES ARE LESS NUTRITIOUS THAN THEY USED TO BE

Stacy Colino | National Geographic | nationalgeographic.com

Another culprit is the soil damage that results from high-yield crops, which all benefit from partnerships with key fungi that enhance the plants' ability to access nutrients and water from the soil.

The “fungi act as root extensions for the plant,” Montgomery says. But high-yield farming depletes soil, which to some extent compromises the ability of plants to form partnerships with mycorrhizal fungi, explains Montgomery.

Rising carbon dioxide levels in the atmosphere are also undercutting the nutritiousness of our foods. When crops including wheat, rice, barley, and potatoes are exposed to higher levels of carbon dioxide, they generate more carbon-based compounds, which leads to a higher carbohydrate content. In addition, when concentrations of carbon dioxide are higher, these crops draw in less water, “which means they bring in fewer micronutrients from the soil,” says Ebi.

A looming threat to public health

To be clear: Fruits, vegetables, and whole grains are still among the healthiest foods on the planet—but consumers may not be getting the nutrients they're counting on from plant-based foods.

“Wheat and rice compose more than 30 percent of calories consumed around the world,” Ebi notes. “Anyone whose diet relies heavily on these grains, particularly low-income populations, could be affected by decreasing consumption of protein, B vitamins, and micronutrients [in these grains]. These dietary changes could lead to deficiencies, such as iron-deficiency anemia in women and girls.”

Soil: The key to boosting nutrients

Using models with the atmospheric carbon dioxide concentrations predicted by the year 2050, researchers estimate that the protein content of potatoes, rice, wheat, and barley is likely to decrease another 6 to 14 percent, according to a study published in a 2017 issue of *Environmental Health Perspectives*.

Most studies that compare produce from conventional farms with organically farmed food don't control for soil health, which Montgomery says is the most important factor.

For the most part, though, the healthiest thing the average shopper can do is keep eating an array of produce.

“We're not talking about a 50 percent decline in nutrient density, so if you're getting a variety of different-colored fruits and vegetables, you'll still meet your nutritional needs,” says Kristi Crowe-White, an associate professor of nutrition at the University of Alabama and a member expert for the Institute of Food Technologists. **“By eating a variety of fruits and vegetables, you will offset some of these nutrient losses”** she says.



THE HEAT IS ON!

Love your outdoor family with MicroLife!

Use one of these MicroLife fertilizers to partner up with humates for extra drought protection, water conservation & stronger plants!



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Increases soil biology life, improves all soils & does an awesome job of feeding your plants. The Original MicroLife formula.

Rate: 20 lb per 1,000 sq ft

- OR -



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The Summer is **HUGELY** demanding on our plants. Restore your plant's health, nutrition, and resilience with **Super Seaweed** and **Ocean Harvest 4-2-3**.



SUMMER LAWN CARE

Molly Pikarsky | Rebel Roots Design | rebelrootsdesign.com

Summer lawn care can be easily managed with fantastic results if you follow organic, soil-health based practices. The great news is that a regime of this type is less work, less expensive, more water-wise, and better for your family, pets, and the ecosystem.

Mowing height is important. **Set the mower high.** Turf like St. Augustine should be 4" tall, at least. Taller grass equals more leaf surface area, which equates to more chlorophyll, more transpiration keeping water and nutrients flowing through the leaves, and more energy for the roots. **Remember the Root-to-Shoot Ratio:** what you have in shoots on top of the ground mirrors the depth of the roots underground.

You need a robust root system to help your turf through the heat of the summer. Mow high! It is important to **feed your turf using a high quality, organic fertilizer**, packed with microbiology like **MicroLife 6-2-4** or **MicroLife Hybrid**. The benefits abound. MicroLife fertilizers will not burn your turf, and they have robust microbiology-72 species of beneficial bacteria and fungi that improve soil quality, make nutrients available for plants, and fight pathogens.

The truth is that your soil microbiome is critical for the health of plants, and for our health, too. Turf that grows in a bioactive soil thrives with less water,

less work, and less cost. In addition to the microbiology, MicroLife fertilizers contain Humates, which is concentrated compost. It corrects soil compaction, making room for air, water, and nutrients. Humates bolster the microbes by providing carbon-based matter. When humates are used, soil porosity, or its ability to move water, is improved, maximizing the water resources. If your lawn has compacted soil, **MicroLife Humates Plus** is effective, easy to apply, and will aid in correcting it. Humates Plus is non burning, like the other MicroLife products, and can be used any time of year. These proven, holistic, effective fertilizer products should be applied once during the summer, then again in the fall.

To give your turf a little bump of energy in the hottest months, **MicroLife Super Seaweed** and **MicroLife Molasses** are the go-to products. Like all MicroLife products, they are non-burning, and their benefits abound.



SUMMER

SUMMER LAWN CARE

Molly Pikarsky | Rebel Roots Design | rebelrootsdesign.com

Seaweed bolsters the cell wall of plants, making them more **resistant to pest and disease**, and more efficient with water resources. Additionally, MicroLife Super Seaweed provides nutrients in a light way that a plant surviving summer stress can readily use.

Molasses provides sugars which promotes healthy soil microbiology. It is important to keep the microbes healthy and active so they can carry out their many functions, like fighting pathogens. If pests or disease become a problem during the summer, the first course of action is to look at irrigation. If you are irrigating correctly, mowing high, and have provided your turf with one of the MicroLife granular fertilizers, the environment in your turf will not be conducive to disease or pest problems. Nature can throw a curve ball once and a while, though.

its no big deal! If they are causing noticeable damage, a product like BT is very effective. A word of caution, though, Army Worms are caterpillars. So are baby Monarchs. It will kill adult butterflies and moths too, so a targeted spray is in order to avoid unintentional death. Think arrows, not grenades.

If you find yourself with a pathogen, like a fungal infection, try **MicroGro AF** or MicroLife **MicroGro Granular**. Using a chemical fungicide will destroy your soil microbes and will upset the balance, resulting in a domino effect of issues. Always look to irrigation and soil health first. Should you find yourself overrun by a pest like army worms, first, determine if they are causing devastation and destruction or if they are just munching on some grass that will fill back in when they move on. If it is no big deal,

By following good, organic practices that include high quality, safe, and cost effective MicroLife products, you can enjoy lush, beautiful turf. The key is to take care of the soil so the soil takes care of the turf. Enlist billions of microscopic gardeners and you will be able to walk across your lawn, barefoot, connected to nature, and thrilled with the reduced water usage, time spent maintaining the lawn, and reduced cost.

What a win!

LAWN CARE

Sod Webworm: Tip Sheet

Greg Cooper | MicroLife Organic Fertilizers | microlifefertilizer.com

Introduction: Tropical Sod Webworms can cause significant damage to turfgrass in just a few days. The adult moths lay egg clusters on grass blades and other surfaces. The larvae feed on the grass blades mostly at night and during overcast days.



Identification: The grass in infested areas will be shorter than the unaffected areas. Chewing damage and discoloration will also be seen. Adult moths can be seen flying as you walk through the grass and landscape. The moths are brown with a wingspan of about $\frac{3}{4}$ " inch. You can use a mix of one tablespoon of lemon dish detergent in one gallon of water to flush the caterpillars out and see if they are actively feeding.



Lifecycle: Adults rest in sheltered and shrubby areas during the day and are active at dusk. Females deposit eggs on grass blades in the evening, and eggs hatch in 3 to 4 days. Tropical sod webworms develop through six larval instars, pre-pupal and pupal stages over 21 to 47 days, depending on temperature. Multiple generations

may occur during a year.

Control: The most effective and safest treatment is a product commonly branded as **BT** or Thuricide. The active ingredient *Bacillus thuringiensis* is a naturally occurring soil-dwelling bacterium. When the caterpillars feed on the treated grass it shuts down their feeding quickly and stops new damage. Mix the liquid concentrate as instructed on the product label and spray the lawn areas. Because of the quick life cycle of the insect, you may need to repeat if new damage or caterpillar activity is found. **Molasses** or **MicroLife Soil & Plant Energy** can be added to the mix at 1-2 ounces per gallon of water to help the **BT** stick and be more effective. Another control product that has helped clients is **EcoSmart Granules** applied at 5 pounds per 1,000 square feet. Both of these control options are safe for your family, pets, and the environment.



Recovery: If the feeding caterpillars are kept under control the grass will recover. A good organic fertilizer like **MicroLife 6-2-4** will help ensure the proper nutrient availability for the grass. For faster recovery, spray **Molasses** mixed at the rate of 6-9 ounces per gallon of water.

Prevention: Unfortunately, there are no sure-fire ways to prevent the appearance of sod webworms. They are aggressive pests and well suited for our region. **EcoSmart Granules** and/or **Garlic Oil** may help repel the adult moths reducing additional damage. Beneficial nematodes such as *Steinernema carpocapse* may help control them proactively in future seasons.

Vegetable Gardening in the Sultry Summer Season

People moving to this area from cooler climates are often shocked the first summer by just how hot it gets. It's not just the daytime highs, but also the very warm nights, and humidity. Summer runs from May through September, if not longer, here!

Many of our spring vegetable garden plants can't take the heat of summer, or at least cease producing well. Fortunately, we have several heat and humidity tolerant vegetables that are at home in hot weather.

Okra, southern peas (aka cowpeas), sweet potatoes, Malabar greens, molokhia, amaranth greens, purslane, and other such plants from hot, humid parts of the world are among a great palate of summer veggies.

Here are a few tips to keep your garden in top shape through the summer with a minimum of time and effort:

**Skip Richter,
County Extension Agent:
Horticulture at Texas A&M AgriLife
Extension Service**

Maintain a 3" layer of mulch around plants. You've heard of the many benefits of mulch, so I won't repeat them here. Save water, save the plants, and save the gardener from hoeing weeds in the heat.

Irrigate deeply and infrequently for best results. Apply enough water to wet a sandy soil about a foot deep and a clay soil 6 to 8 inches deep in a single application or split into two applications a week, depending on soil type and temperatures.

Remember that over-watering can be equally devastating, especially when drainage is poor. Soggy soil conditions combined with blazing hot sunny weather can kill a plant in a matter of days. Drip irrigation is the most efficient way to water and avoids wetting plant leaves, which can increase disease problems.

Purchase a hose end timer for your drip system to take the work and waste out of watering the garden.

Build the soil in areas not in production by incorporating organic matter, which will decompose rapidly and be ready for your fall planting time in late summer. Southern peas make a good summer cover crop to build the soil, especially if they are mowed down and turned into the soil before developing pods.

Finally, drink plenty of water when working outdoors. The hot humid weather can be very dangerous.

Use sunscreen with a high SPF rating and try to avoid extended time out in the sun during the heat of the day.

Sun damage to the skin is cumulative so every small step of prevention is critical!



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