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APRIL/MAY 2001

ONLINE MAGAZINE

Shades of Green: The Struggle Between Technology and the Environment

**Whoa! Back
the Attitude
Train Up**

NEW!
**Soil Tilt and
Texture**

PHC-TV Presents
“Water
Management
Gels”

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PlantHealthCare.com

ONLINE MAGAZINE

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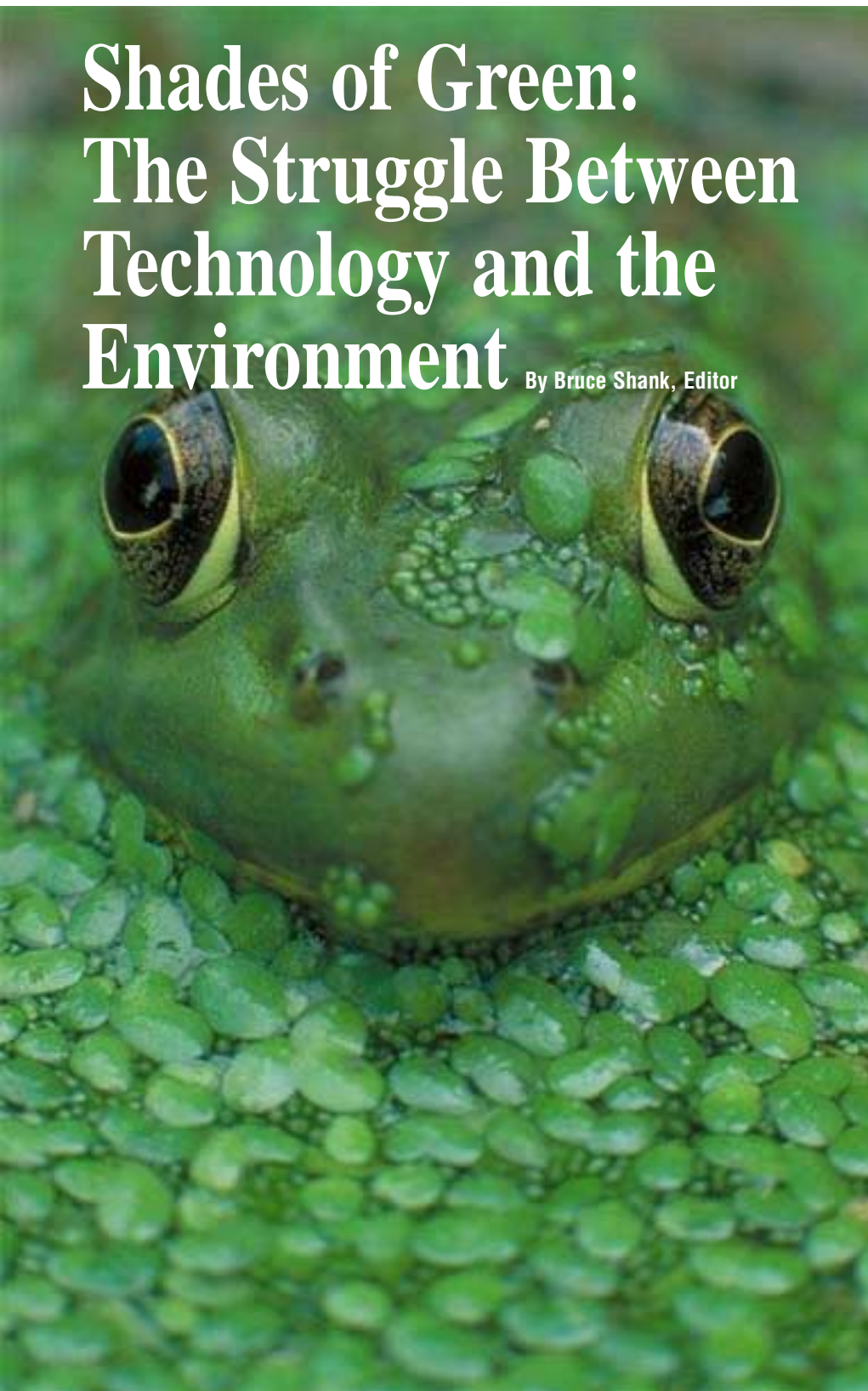
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Shades of Green: The Struggle Between Technology and the Environment

By Bruce Shank, Editor



The attitude of people around the world about their environment counts more than ever today. As the world gets smaller and nations become more interdependent, one continent's insistence on environmental responsibility spreads around the world. Who isn't aware today of mad-cow and foot and mouth diseases, deforestation of the Amazon rainforest, and oil spills? The political power of environmental activists is no longer negligible.

With each natural disaster we admit that, as smart and rich as we are, we can't beat Mother Nature. We suspect that our reliance on ingenuity and technology isn't foolproof. When we make a mistake or don't have the complete answer, we are reminded of nature's counterbalances developed through natural selection over millions of years.

Furthermore, citizens of Democratic nations want a voice in decisions about nature and technology. They no longer completely trust politicians, scientists, and corporate executives to make these decisions. They are using their votes and their purchasing power to force leaders to be more considerate of nature's own solutions.

What started in Europe, as the "New Left" 40 years ago, is now an organized

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Green Philosophy Comes in Different Shades CONTINUED

force of local Green Parties across Europe and in 46 of 50 of the United States. Green, once a term used primarily to represent money, is now a color associated with environmental activism.

The more traditional, less technologically centered beliefs of Europeans have crossed the Atlantic Ocean. Small bands of protestors are allying with each other, largely through the Internet, to become a political and economic force that can't be ignored by the press or politicians. They are proving that their concerns are real and won't go away. They believe that the future of the earth depends on them. They will not stop fighting for the environment and believe that the scale will tip in their favor one day.

Differences in Attitude

For more than two centuries the world has recognized the United States as a leader in technology. Its prowess in agriculture and industry has continued into the Age of Technology. American answers tend to be bigger and bolder than Europe's. However, there is a growing sense that these big, bold steps are too big and too bold some times. That sense is European in origin.

"The main difference between the United States and Europe is their sentiment regarding technology," explains Dr. Robert Chanson, chairman of Eco-Rating International, the "Moody's" of environmental rating with offices throughout the world. (See sidebar). "U.S. sentiment is very strongly rooted in the belief that one can resolve environmental problems with technical means. It is based

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Dr. Robert Chanson lives in Zurich, Switzerland and has witnessed the development of the Green Movement in Europe. He is eminently qualified to comment on the movement for many reasons. In 1992, he founded Eco-Rating International (ERI), an organization that rates companies around the world for the environmental impact of their technology, manufacturing processes and products. The philosophy of ERI is that companies that follow sound environmental practices are better able to meet their economic objectives. Chanson is an international expert on environmental law and a member of the Zurich Parliament. He serves as advisor and member of the board for numerous European banks, advisory councils, and environmental businesses, including PHC, the publisher of this magazine.



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Green Philosophy Comes in Different Shades CONTINUED

around a faith in science and technology. Whereas in Europe, there is a belief that environmental problems are an issue of lifestyle.

“A good example is energy conservation,” he continues. “In the U.S., you conserve energy because it makes commercial sense and you have the technology [energy saver bulbs]. In Europe, you conserve energy based on ethical considerations because you don’t want to spoil nature. Rather than changing the bulb, you switch off the light every time you leave the room.”

More importantly, this type of thinking translates into other fields, such as bioengineering, Chanson explains. “Europeans, as evidenced by the Green Movement there, believe that nature can provide the solutions, even for things like worldwide hunger. In the U.S., we strongly believe that we need to move a major step forward in bioengineering to overcome a number of challenges, including hunger.”

When asked why European thought is more focused on natural solutions and ethics while the U.S. is centered more on science and technology, Chanson points to cultural roots. “The United States is a young society with less foundation in tradition than Europe, so everything is a bit up in the air. You could say that is an advantage of being ‘open.’ Americans consider new things, they quickly adopt use of new materials, and they aren’t tied to traditions as much. This is probably the major reason why bioengineering is being viewed very skeptically in Europe.”

Traditions still play an important role in Europe, Chanson says. A good example is the status of craftspeople in Europe. “Manual craftsmen and women have professional training comparable to white-collar occupations and they are very well respected. They go through an apprenticeship and are paid much the same as those in white-collar jobs. This shows a difference in appreciation for skilled labor between Europe and the U.S.”

Again, this attitude translates into other issues, including environmentalism, he states. Europeans value natural solutions as much or more than technical ones.

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Green Philosophy Comes in Different Shades CONTINUED

The difference in attitude is also seen in business. “Productivity pressure and the quarterly bottom line predominate thinking in the U.S.,” Chanson says. “In Europe, even big businesses are moving slowly to the quarterly bottom line approach. You can see how the European and American approaches clash in the management of Mercedes and Daimler, essentially one company operating in two places. Two different cultures are at odds with each other.”

In Europe, culture favors pragmatic, bioengineering-free approaches. This is especially true for anything related to the food industry, explains Chanson. “Bioengineering is a big liability for any commercial partner in the food industry in Europe,” he says. “As managers of plants, those in horticulture are indirectly part of the food industry. More pragmatic, natural approaches are favored.”

Back in the U.S.

The United States’ reliance on science and technology ironically has begun to favor more natural solutions to food and plant challenges. Advanced technology now enables us to detect pollutants in parts per billion. People are questioning the cost of some technologies compared to their benefits, especially when that cost can be linked to human health and the environment.

When the Environmental Protection Agency (EPA) cancelled DDT three decades ago, after linking its residues to declining bird populations, the bell sounded for the first round in a fight between the industrial power base and citizens concerned about nature’s ability to withstand an onslaught of pollution and oversight. With each successive round, the bell seems to ring sooner and the boxer in the green trunks appears stronger. Faster they fall — chlordane, Dursban, Diazinon and methyl bromide — all victims of detectable residues and their potential threat to water supplies and food. Both boxers continue to get up after each knockdown.

Synthetic chemicals have been the standard for nearly a century. Organic, or biological pest control has taken a back seat throughout the period as agriculture and horticulture have made quantum leaps in production and quality with the aid of

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Green Philosophy Comes in Different Shades CONTINUED

synthetic chemicals. Americans have been so busy patting themselves on the back for this burst of progress that they have neglected development of nature's own remedies. We no more understand the potential of biological products than we do the impact of synthetics on existing biological controls in the soil and in plants.

Interested observers, who first rooted for the heavier, stronger fighter with the best odds and better dividends, are now impressed by the persistence and endurance of the underdog. The politically powerful, talk up both contestants. Their reelection depends upon walking a tightrope between the two. This dichotomy in American thought makes the U.S. ripe for European, green philosophy.

The Green Movement is trying to swing the momentum in favor of the naturalist, the fighter in the green trunks. A better understanding of the Green Movement has become important to arborists, groundskeepers, landscape contractors and turf managers today.

The Green Story

Who are these activists who drew their first headlines by protesting nuclear power plants, darting in front of whaling ships, and protesting meetings of international finance ministers? How did they grow from small bands of protestors into a national political party that received millions of votes in the last U.S. Presidential election?

Adopting philosophies of Mahatma Gandhi and Martin Luther King, Europeans who believed in liberal (leftist) ideas formed a crystal of environmental activism during the 1960s. Whereas the "Old Left" was politically loyal, the "New Left" was unpredictable. It fought compromise when it came to nature and mankind. In a sense, it fought for tradition in untraditional ways. By the 1970s, the movement had mastered grass-roots politics and gained independent electoral expression. It was a force to be reckoned with in many local and some national elections. (See www.europeangreens.org and www.geocities.com/rainforest).

By the mid-eighties, the world press was interested in what these activists had to say and began to devote more coverage to their causes. Interest spread slowly but steadily.

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Green Philosophy Comes in Different Shades CONTINUED

The first loose structure of new left activists was officially organized in 1984 as the Green Committees of Correspondence Network, an awkward translation of the German.

The strength of the Green Party has been local issues, better known as bioregionalism. To preserve this momentum, the Party operated as small, grass-roots organizations informally held together by the new meaning of the word green, man working in cooperation with nature. Today, there are Green Party locals in 46 states cooperating largely through online discussion at www.greenparty.org For a membership fee of less than \$100, a person can become involved both locally and internationally in Green Party activities.

An advantage of the Green Party over groups such as the Sierra Club is the diversity of its platform. The four pillars that tie the movement together are ecology, social justice, grass-roots democracy, and nonviolence. Appealing to the common working man, the organization promotes both social and environmental justice.

More specifically, the issues dear to the hearts of Green Party members include:

- Ban patents on new bioengineered life forms
- Moratorium on bioengineered life forms, especially cross species
- Ban on synthetic chemicals
- Subsidize farmers in converting to organic agriculture
- Serve the working class majority
- Protect those oppressed by racism, heterosexism, and domination
- Promote peace, justice, and a clean environment
- Press for a participatory democracy

continued





Green Philosophy Comes in Different Shades CONTINUED

The Green Party is pro-union and suspicious of the power of the rich. Like its parent in Europe, the Green Party conflicts with the older, politically elite in general. It is not Democratic or Republican and does not seek to compromise its positions to gain power. Now, perhaps you understand better the candidacy of Ralph Nader in the 2000 elections better.

Those who compare the Green Party with the Independent Party of Ross Perot for its impact on elections should remember that issues come first and the Party second. The Green Party is not trying to be centrist so it can appeal to the most voters. Its message is rooted in the earth, not Wall Street. It doesn't feel obligated to win elections to change governmental policy. Yet, Green Party candidates have won public offices in many states.

Business and Green Philosophy

Just as large political parties aren't inclined to agree with the Green Movement, you wouldn't expect big business to like it either. Some businesses, on the other hand, see an opportunity in the movement.

"I thought a few years back that the Green Movement wouldn't have much of an impact on business," says Chanson, "but recent developments have changed things. It has been able to play a catalytic role in highlighting events, like mad cow disease. Because of the Green Movement, agriculture in Europe is changing. A synergy between the movement and these bad developments has taken place. The combination forces traditional political parties and businesses to adapt. This will influence the U.S. as well.

"Bioengineering in agriculture is global," Chanson claims. "Foodstuffs and plants are traded globally. If one major country sets certain standards, corporations are forced to adopt these standards because they cannot afford to distinguish among different markets."

Chanson cites auto production as an example of global standards. "Auto air emissions standards in California have forced car manufacturers to adopt a global standard.

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Green Philosophy Comes in Different Shades **CONTINUED**

States and countries that didn't really ask for cars with low emissions now have them."

Sustainable Profitability

Sustainability is a buzzword today in business. All businesses want to sustain whatever contributes to their bottom line. But the concept of sustainability often takes a back seat to the demand for quarterly profits.

"Sustainability depends on environmental friendliness," Chanson says. But, it also involves other considerations, such as ethics. He explains that you can't predict the contribution of environmental friendliness or ethics to the bottom line. These factors require different time horizons that don't fit a quarterly business mentality.

"Companies have to gauge all risks and opportunities, even those which don't always translate into short-term financial statements."

Take power generation for example. Look where we are today with power generation because of a lack of long-range standards. Power generation carries significant environmental considerations. Sustainability of power output was sacrificed in California by a combination of government price controls and short-term corporate profits. Now electric prices are rising nearly 50 percent in less than a year due to a lack of generating capacity, which has fallen short of demand just before the summer. A similar disaster could happen in agriculture without a sustainable approach to both business and the environment. Can you imagine a 50 percent increase in food prices?

The Future for Green

"I'm convinced that the Green Movement will expand globally and is here to stay," Chanson states. "It might not be as purist as it is in certain parts of Europe. On the other hand, Europe is also being influenced culturally by the U.S. Younger generations in Europe are moving away from their traditional lifestyles due to the Internet and pop culture. But, certain underlying principles are necessary to help carry some very basic values over a longer period of time. As big business changes to sustainable practices

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Green Philosophy Comes in Different Shades **CONTINUED**

and traditional political parties take up Green Movement ideas, the Green Movement in the form of a political party might vanish, but the underlying ideas and values are here to stay.”

Fads come and go, but nature is here to stay. As long as we challenge nature with our actions, there will be a Green Movement.

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Whoa! Back the Attitude Train Up

by Teresa Doyle, Editor, *Land and Water*

As editor of *Land and Water*, I work with a diverse group of people in the field of natural resource management and restoration: landscapers, engineers, contractors, manufacturers, salesmen, government employees, students, etc. Our magazine focus is erosion control, water management and the fields involved in those areas of work. It's a challenge for me talking to such a variety of people, trying to understand their line of work and what they're talking about. Mine could be a frustrating job, but I opt to see it differently. Because I'm forever learning something, I see my job as fun!

That "flip" in thinking is ATTITUDE. It's something all of us have and something we have to deal with on a daily basis. We look around us and see if others have a better one than us and think, "I'd sure like to have one of those." If we want to be happy at home and in our work, we need to continually be thinking about our attitude and what it may be doing to ourselves and other people.

I decided to look up "attitude" in Webster's New Collegiate Dictionary by G. & C. Merriam Co. It says, "2.a.: a mental position with regard to a fact or state; b: a feeling or emotion toward a fact or state."

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Turn Frowns Into Smiles CONTINUED

To be fair to those in the publishing business, I looked up “positive” in the American Heritage Dictionary by Houghton Mifflin Company. The definition was, “1. Characterized by or displaying certainty, acceptance, or affirmation: a positive answer; positive criticism.” Check it out! (No pun intended.) Put the two words together—positive attitude—and doesn’t that put a smile on your face?

How often are you affected by others’ attitudes? How about just listening to the news—how does your thought process change? If you were in a good state of mind before turning on the news, chances are you’ll be thinking some negative thoughts before the half-hour is over. Our world loves to hear and talk about all the bad things happening around us. My vote is to bring all the good stuff to the surface and let everyone know how really blessed we are!

A hot topic hitting the news on a regular basis is wetlands. Try this little psychology quiz: What do you think of when you read the following words? wetlands, farming, drainage, wildlife, native species, urbanization? From my seat as editor, I hear positive and negative about all of these words—separately and jointly. “More lawsuits.” “More regulations.” “You can’t move without fear of being fined.” “We have to protect our natural resources.” “Progress means moving ahead.” “Our land is being taken over.” I really think we do all want to preserve our land and what’s on it, and at the same time feed our people. There ARE answers—think positively.

I’ve heard from Mr. W about Mr. L and how Mr. L failed. (W being winner and L being loser) What makes Mr. W feel so good about himself? Is it necessary to speak poorly of another person or company to get ahead? It makes me chuckle. Sure sounds like the political arena, doesn’t it? I don’t see that it’s been working!

I get acquainted with many people at conferences and in daily conversations from our office. It’s not unheard of for any of these people to change companies and end up working for a competitor. Regardless what has motivated their desire to work for another company, their loyalties change to the new company. We should be true and trust in those we work for, and those that work for us. Keeping that in mind, how does it look for any one of these people to bad-mouth the competition and then later

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Turn Frowns Into Smiles CONTINUED

work for that same company that they had spoken ill of? See how this works? It's okay to say you have a good company and the best product, but keep the mudslinging out of it. Salespeople can get caught up in this when they're hungry for a deal. If you're going into your business or place of work with the perspective of "how can I help make things better?" then every day will be successful. And your positive attitude will catch on to others. It's a contagious kind of thing, and something everyone would like to catch.

Competition is a healthy thing. It causes us to rethink our position and to learn more. We can become complacent without someone challenging us. The positive thinkers in the competitive field are the ones that succeed.

A college education doesn't assure you a good or great job. There are a multitude of people that have achieved dreams simply because they had the right attitude. My parents raised twelve children, are owners of two family businesses, spent most of their adult lives being involved in a contractors' association, and they are still working to help others wherever they go. They taught their children to love their neighbor and to pitch in and help. Our family is very close and we run the construction company and the magazine just as our parents taught us. A positive attitude is at the top of the list of priorities. As my father says, "If you're not having fun, you're doing it all wrong!" Other lines we've heard from our parents while growing up were "learn to get along" and "we're all in this together".

Remember not to "talk down" to others. Your thinking should be that the other person has something to share with you; open the door to that opportunity!

When someone is talking to me and prides him/herself in the knowledge that they know more than me, it certainly can shorten the conversation. Converse on a common level, so both of you know what is being said. People can be embarrassed to admit that they don't have a clue what you're talking about. I am grateful for all those I talk to who take the time to walk me through a project they're working on, or to explain what something means. The patience shows in their phone attitude.

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Turn Frowns Into Smiles CONTINUED

Don't lose the personal touch! With modern technology, it gets easier to make things fast and convenient. That "instant" syndrome that we have adopted has caused us to be forever in a hurry and stressed. That in turn causes our positive, relaxed attitude to change direction. BEFORE you answer the phone, the thought in your mind should be "what can I do for the person on the other end?" Even if you don't have the time or the energy to help the business contact calling you, it can be displayed in an upbeat way.

I find myself all too often saying, "Hurry! We're gonna be late!" My husband said that I even mumble it when I'm talking in my sleep! Not the phrase I want to be remembered as saying.

We need to slow down, take a deep breath, and still ourselves enough to listen. Listen to what is happening around us. Listen to our own thoughts and allow ourselves to let ideas and notions soak into our energized brains. Now. . .are they good thoughts??

We could learn from the Mexican culture. Ever notice how they're not in a hurry? It can be quite frustrating for the average American because we're so anxious to be somewhere or to get something accomplished on our list. How about a siesta? Don't wait for the heat of the day to be the reason for a little time out. I'm sure your attitude and perspective would be brighter and clearer if you'd just allow a 10-15 minute time-out during the busy time of day.

I challenge you in the next month to get together with or call someone you normally have a hard time dealing with—or someone you deal with and just don't understand how/why they operate the way they do. Coming from a family of contractors, I know contractors and engineers often follow different ranks because they don't agree on how things are done. Have you taken the time to ASK and LISTEN to WHY they do things the way they do? Take a chance and ask the questions you normally would have pounding on your brain (because you're mad and can't believe they're "at it again!").

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Turn Frowns Into Smiles CONTINUED

In any application, there is going to be a right or a wrong way to do it, and you have to find the right product for the particular application. That goes for all kinds of jobs. If you're not sure what you're doing, get the lines of communication open. And I mean positive and patient lines.

Okay...back to the attitude thing. My husband says, "Whoa! Back the attitude train up." Who are we thinking about when we hear negative comments coming out of our mouths? Need some exercise or home improvement? Turn the frown into a smile. Wouldn't the world be a lovelier place if everyone thought of two other people before they thought of themselves! THAT thought is amazing!

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Soil Tilth and Texture

by Felicia Gillham, Managing Editor



Soil is the architecture of the below-ground environment. Its aggregates provide plant roots with support to stand tall, and its pores are canals for the free movement of air and water. Soil tilth and texture are dependant upon the number and makeup of these soil structures, and not surprisingly, the microorganisms that live within them play a large role in keeping the soil community alive, well and productive.

What is a surprise is the large amount of information about soil tilth and texture that is available on the Internet. Join us on this tour of World Wide Web soils as experts around the world provide information and advice.

Biological Impact

Soil biological activity substantially affects soil structure, including the size of soil pores, the stability of soil aggregates, and the existence of macropores. Soil structure impacts how water flows over, into and through soil, and how much water is held within reach of plant roots.

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A Web Guide to Good Soil CONTINUED

1. Large burrowing invertebrates (e.g., earthworms, ants, termites, beetles) create macropores that allow rapid flow of water into or through soil.
2. Even tiny arthropods produce fecal pellets that are mixtures of soil and organic matter. These become stable soil aggregates.
3. Fungi and bacteria produce substances that help bind soil particles together and stabilize soil aggregates.
4. Soil organic matter can be physically protected from degradation within stable soil aggregates.

For more information, go to:

http://www.statlab.iastate.edu/survey/SQI/soil_biology.htm the site for the USDA Natural Resources Conservation Service, Soil Quality Institute. The information featured here is extracted from the *Soil Biology Primer*, a book available from the Soil and Water Conservation Service at www.swcs.org or by calling 1-800-THE-SOIL.

Super Soil Structure

In order to maintain an well-aggregated soil structure, i.e., to improve or maintain good tilth, the organisms that glue, bind and engineer soil structure and soil pores must be present. Good tilth or good soil structure allows optimum infiltration of air, water and roots. Aggregates will not form unless sand, silt and clay particles are “glued” together by the gums and gels that many species of soil bacteria produce.

These aggregates are further strengthened against collapse by species of beneficial fungi that grow throughout the aggregate and physically bind it. The large pore spaces holding “reservoirs” of water must be built by the larger critters, by microarthropods, earthworms, beetle larvae, etc. The better the set of soil organisms producing resilient structure, the more “strength” your soil has. The more resilient the structure of the soil, the bigger the equipment that can be driven on it, without destroying that structure.

For more information, go to: <http://www.soilfoodweb.com> the site of Soil FoodWeb Incorporated by Dr. Elaine Ingham.

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A Web Guide to Good Soil CONTINUED

When Do Organisms Work?

The activity of organisms is constantly changing with temperature, moisture, pH, food supply, and other environmental conditions. Different species prefer different conditions, so even at maximum total activity levels only a minority of soil microbes are busily eating and respiring. The highest total activity is in late spring/early summer and in late summer/early fall when the soil is warm and moist. In early spring, some [landscapers] see nutrient deficiency symptoms in their plants because not enough microbes are warm enough to convert organic compounds into plant-available nutrients. Leaching of excess nitrate often happens in early spring when the soil is too cool for either plants or microbes to grow and immobilize the nitrogen.

For more information, go to:

<http://www.extension.umn.edu/distribution/cropsystems/DC7403.html> and view the “Soil Management Series” at the Soil Biology & Soil Management section of the University of Minnesota Extension Service web site.

Managing for Soil Quality

Each combination of soil type and land use calls for a different set of practices to enhance soil quality. Yet, several principles apply in most situations.

1. Add organic matter. Regular additions of organic matter are linked to many aspects of soil quality...Organic matter, and the organisms that eat it, can improve water holding capacity, nutrient availability, and can help protect against erosion.
2. Avoid excessive tillage. Tillage has positive effects but it also triggers excessive organic matter degradation, disrupts soil structure, and can cause compaction.
3. Carefully manage fertilizer and pesticide use...In addition to their desired effects, they can harm non-target organisms and pollute water and air if they are mismanaged. Manure and other organic matter also can become pollutants when misapplied or over-applied. On the positive side, fertilizer can increase plant growth and the amount of organic matter returned to the soil.

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A Web Guide to Good Soil CONTINUED

4. Increase ground cover. Bare soil is susceptible to wind and water erosion, and to drying and crusting. Ground cover protects soil, provides habitats for larger soil organisms, such as insects and earthworms, and can improve water availability.
5. Increase plant diversity. Diversity is beneficial for several reasons. Each [plant] contributes a unique root structure and type of residue to the soil. Changing vegetation across the landscape or over time increases plant diversity and the types of insects microorganisms, and wildlife...

For more information, go to: <http://www.statlab.iastate.edu/survey/SQI/index.html> and visit the Soil Quality section, another area found at the USDA, Natural Resources Conservation Service, Soil Quality Institute.

Why Organic Matter?

Simply put, organic matter helps maintain soil structure, and it does it by:

- Forming aggregates
- Aiding cultivation
- Allowing water and air movement
- Retaining water
- Reducing erosion
- Buffering the effect of pesticides
- Preventing nutrient leaching

For more information, go to: <http://www.safs.bangor.ac.uk/dj/lectures/om/om.html> for the lecture notes on “Soil Fertility and World Soils,” by Davey Jones at the School of Agricultural and Forest Sciences at the University of Wales, Bangor, UK. Two additional lectures may be of interest: “Soil-Plant-Microbial Interactions” at <http://www.safs.bangor.ac.uk/dj/lectures/s-lect.html> and “Soil Management” at <http://www.safs.bangor.ac.uk/dj/lectures/d2502/d2502.html>

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A Web Guide to Good Soil **CONTINUED**

Structure vs. Texture

Soil structure and texture are often discussed together and often confused. Whereas texture refers to the sizes of the individual particles that make up the soil, structure refers to how these particles may be stuck together to form crumbs or larger structures. Structure is very important. If the soil simply consisted of a mass of individual particles, the spaces in-between would be very small and would seriously restrict the movement of air and water, particularly in the heavier soils. A clay soil with no structure would be very similar to the clay used by a potter, with the water being held at very high tension.

Structure may develop as the result of wetting and drying, burrowing of animals including earthworms, growth of plant roots, or the addition of lime. The stability of the structure will be higher in soils with a reasonable organic matter content, i.e. a soil containing very little organic matter is likely to suffer a loss of structure when it becomes wet.

For more information, go to:

<http://www.denislindsell.demon.co.uk/pasture/soils/index.htm> and visit the “Soils” section by Denis Lindsell, Duchy College, UK, 1998-2000.

Indicators of Soil Physical Health

- Bulk density
- Resistance and strength
- Porosity
- Aggregate stability
- Visual signs of compaction, crusting and erosion
- Visual signs of root growth
- Available water shortage

For more information, go to:

<http://www.ag.ohio-state.edu/~prec/soil/slides/tilth/sld001.htm> “Soil Tilth: Managing & Improving Soil Physical Conditions,” a presentation by Ohio State University Extension, USDA Natural Resources Conservation Service, and Innovative Farmers of Ohio.

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A Web Guide to Good Soil **CONTINUED**

Unearthing Secrets

Jerry Hatfield, director of the National Soil Tilth Laboratory, located on the campus of the Iowa State University in Ames, still likes to conduct research that is literally “in the field.”

But his lab, part of the U.S. Department of Agriculture, actually takes a global approach to the study of soil. The lab, opened in 1989 to investigate soil quality, or “tilth,” is a place where scientists regard soil as an ecological system—a system that includes humans. The goal is to help keep humanity fed, as more of us try to subsist on ever less arable land.

With that mandate in mind, 21 scientists and 6 research associates, from an array of disciplines, are studying everything from soil’s underpinning of nutrient structure, to the crucial role of earthworms (the best little cultivators around), to the billions of microbes that inhabit every teaspoon of dirt.

To read this article, go to:

<http://www.ibiblio.org/intergarden/permaculture/mailarchives/permanet.1/msg00075.html> “Unearthing Secrets Locked Deep Inside Each Fistful of Soil,” Smithsonian Magazine, March 1997.

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PlantHealthCare.com

ONLINE MAGAZINE

About Planthealthcare.com Online Magazine

PlantHealthCare.com Online Magazine is posted at www.planthealthcare.com for professionals who produce, design and maintain plant material in the arbor, landscape architecture/design, landscape maintenance, nursery/greenhouse, and parks and recreation industries. Published as an educational service by Plant Health Care, Inc., the PlantHealthCare.com Online Magazine is designed to engage, educate and inform professionals about new technologies that promote the health of plants, specifically those that create “sustainable” landscapes that cost less, provide more value and last longer. The magazine also seeks to open discussion about issues that impact the many businesses that serve the plant health industry.

■ About Our Copyrights



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Meet Your Editors

Bruce F. Shank Editor

Bruce Shank is owner of BioCOM, a horticultural communications company based in Palmdale, CA. He is the editor of *Irrigation Business & Technology*, managing editor of *TurfGrass Trends*, and former editor of *Landscape & Irrigation*, *Landscape Management* and *sportsTURF* magazines. He was graduated by the University of Missouri—Columbia with a degree in agricultural journalism in 1973. He is a past president of the American Society of Business Press Editors and a member of the Turf & Ornamental Communicators Association.

■ [Send an e-mail message to Bruce Shank](#)

Felicia L. Gillham Managing Editor

Felicia Gillham is owner of Gillham & Associates Marketing Communications, a San Diego, CA firm she established in 1989 to service the needs of turf and ornamental, agricultural and biotechnology companies. Articles written by Gillham on behalf of her clients have appeared in more than 100 Green Industry and farm trade publications. She is a 1980 graduate of the University of Missouri—Columbia with a degree in agricultural journalism. Gillham is a member of the Turf & Ornamental Communicators Association, American Agricultural Editor's Association and the National Association of Farm Broadcasters.

■ [Send an e-mail message to Felicia Gillham](#)



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Meet Your Editors CONTINUED

Teresa Doyle Guest Columnist

Teresa Doyle has been editor of *Land and Water Magazine* for the past 12 years. She has been involved in conservation for most of her life—growing up in a family of contractors and on a farm. Doyle graduated with a BA in secondary education from the University of Northern Iowa in 1984. After teaching for three years, she began working at *Land and Water*. She enjoys giving conservation presentations to elementary and middle school students. Doyle is a volunteer for several organizations, while being a wife and mother of four.





Tool Kit

TOOL KIT

Welcome to the PlantHealthCare.com Online Magazine Tool Kit. On this page, you'll find free software and other helpful web tools that your editors and other readers have found helpful or just-plain fun. A word of caution, however. Download at your own risk. If you should have problems, contact the manufacturer for technical help.

■ Acrobat Reader (Free Download)

Allows you to view pages across different computer platforms.

■ Shockwave and Flash Player

Lets you experience animation and entertainment in your web browser.

■ Internet Explorer 5.01

The newest version of the Internet Explorer browser with 56-bit encryption.

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A source for shareware, freeware and evaluation software.

■ SOUNDamerica

A collection of sound files for your listening pleasure. For entertainment only.

■ EntryPoint

Consumer shopping utility and Internet news and information service.

■ WebFerret

A fast, powerful search utility.



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Calendar of Industry Events

April

8-10

Southern Chapter International Society of Arboriculture, Birmingham, AL.

21-25

Solar Energy Forum 2001, American Solar Energy Society, Washington, D.C.
303-443-3130

May

17-19

Organic Trade Association Organic Conference and Trade Show, Austin, TX
517-327-9207

19-23

ASIC National Conference, American Society of Irrigation Consultants,
Savannah, GA 816-472-6100

28-June 1

International Master Gardener Conference & Trade Show, Lake Buena Vista, FL,
352-392-8836

July

10-15

ANLA Convention, American Nursery & Landscape Association, Cleveland, OH,
202-789-2900

19-21

Turfgrass Producers International Summer Convention, Toronto, Canada,
800-405-8873

19-22

ALCA Summer Leadership Meeting, Associated Landscape Contractors of America,
Amelia Island, FL, 800-395-2522

20-22

EXPO 2001, Louisville, KY, 800-558-8767

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Midwest Turf Field Day, Purdue University, West Lafayette, IN, 765-494-8039



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Calendar of Industry Events

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August

4-8

Annual Conference of the Soil and Water Conservation Society, Myrtle Beach, SC, 515-289-2331

17-18

Nursery-Landscape Expo, Dallas, TX, 530-458-3191

17-19

ALCA Design/Build Workshop, Atlanta, GA, 800-395-2522

September

9-11

American Nursery & Landscape Association Legislative Leadership Conference, Washington, DC, 202-789-2900

13-14

Southwest Horticultural Trade Show, Arizona Nursery Association, Phoenix, AZ, 480-966-1610

22-25

American Society of Landscape Architects Annual Meeting, Montreal, Canada, 202-898-2444

October

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Washington Landscape Field Day and Trade Show, Puyallup, WA, 800-833-2186

12-13

Plant Health Care Plant Biology Workshop, Instructor: Dr. Donald H. Marx, Frogmore, SC, 888-290-2640

November

9-10

Plant Health Care Plant Biology Workshop, Instructor: Dr. Donald H. Marx, Frogmore, SC, 888-290-2640