

REFLECTOR

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texas renewable energy roundup

exhibits workshops free guest speakers food family activities sustainability tours

Green Living & Sustainability 3-Day Fair
September 20-22, 2002 on Main Street in downtown **Fredericksburg**
 gate entry \$5 day, 3 day pass \$10, children under 12 free. Organized by Texas Solar Energy Society & Texas Renewable Energy Industries Association. www.texasrenewableenergyroundup.com toll free 866-208-7413

SECO
 Solar Energy Conservation Office

Major sponsors include: Acres U.S.A., American Solar Energy Society, Austin Energy Green Building Program, GE Wind Energy, happy rat studio, and Lower Colorado River Authority.

Join us at the Roundup! On the Marketplatz in downtown Fredericksburg

Gates open:
 Fri., noon to 6 p.m.
 Sat., 9 a.m. to 6 p.m. Sun., 9 a.m. to 3 p.m.

Gate entry fee: \$5/day or \$10 for a 3-day pass. Children under 12 free
 Gate entry includes tent talks all day; exhibits and demonstrations;
 alternatively fueled vehicles (some ride and drive); family activities;
 natural food; live music.

For an additional fee, in-depth workshops are scheduled in air-conditioned classrooms around town each day from 8:30 a.m. to 12:30 p.m. and from 2 p.m. to 6 p.m. There are also tours of organic farms and ranches, of Bamberger Ranch, and of Texas vernacular architecture that embody natural cooling.

Sunday is Family Day, with even more kid's music and activities. \$2 off entry fee for each adult accompanied by a child under 12.

Check out the web site at
www.RenewableEnergyRoundup.com
 for the specifics or call toll free **866-SUN-FAIR**

U.S. Energy Flow-In the Belly of the Beast

From a biological perspective, think of the U.S. economy as the largest "animal" the planet has ever seen—a living, breathing T. Rex Americus, whose energy appetite is gargantuan. If we dissect the beast to study the energy flows that sustain it, we end up with the chart on page 2, produced at Lawrence Livermore National Laboratory.

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Visit our web site for a calendar of events:
www.txses.org

At first glance it may seem laughingly obtuse, a bizarre eye exam. But if you are interested in America's energy realities, challenges, and opportunities, it's worth studying.

Looking at the chart, energy flows into the economy from the left. It is consumed by power plants, boilers, furnaces, aircraft turbines, and automobile engines in the middle. The energy services provided by those prime movers are used in the residential, commercial, industrial, and transportation sectors on the right.

In 2000, the U.S. economy devoured 98.5 "quads," or 98,500,000,000,000 British thermal units. More than half of the energy was, as the chart demurely puts it, "rejected" at the upper right. The remainder did useful work.

The Oil Tribe

Petroleum provides 39 percent of U.S. energy. Some oil is converted to electricity, some fuels home furnaces, some is used to make petrochemical products, but most moves cars, SUVs, trucks, planes, tractors, snowmobiles, etc.

Since September 11th, we have been reading about Uzbeks and Pashtuns—exotic tribes in central Asia. But we Americans are the Oil Tribe, consuming 150 pounds (68 kg) of petroleum per person each week. Domestic production peaked in 1970, and we now import nearly 60 percent of the oil we demand.

Transportation is a petroleum monoculture; alternative fuels like biodiesel,

ethanol, natural gas, and propane barely register. Note too, how terribly inefficient our transportation system is, wasting four of every five units of energy it consumes.

Coal Makes Kilowatts

Coal provides nearly one-fourth of U.S. energy, and most of it is burned in electric power plants. One pound (0.45 kg) of coal will produce one kilowatt-hour, plus two

pounds (0.9 kg) of carbon dioxide, as the carbon in coal combines with oxygen in the air.

A typical coal plant wastes two out of every three units of energy it consumes. Nonetheless, coal has been the backbone of our electricity system for a century, and climate concerns aside, is likely to be the dominant fuel used for electrical generation for decades to come. The reason? It is cheap and abundant, our most plentiful domestic fuel.

Methane Madness

Each year, 280 million Americans use as much natural gas as 3 billion people in Europe and Asia. What we call gas is mostly methane, a wonderful molecule that can heat your home, dry your clothes, grill your steak, and run a car or a power plant.

Nearly all new power plants are gas fired. Gas is also critical to agriculture, since it is the key feedstock for fertilizer. Per capita, we use a dumpster's worth of gas each day. U.S. gas production peaked in 1973, and imports have grown sharply since 1990. Indeed, we are now the world's largest importer.

When Canadian gas production peaks in the next decade, they may decide to cap

exports to the "damn Yanks."

Sooner or later, expect to see a US \$15 billion gas pipeline to Alaska. We will also need to import increasing amounts of liquefied natural gas. It is cooled to -260°F (-62°C), and shipped in on special tankers, which have the energy density of a tactical nuclear weapon.

Bit Players

The band dubbed "biomass," and the hydropower band

above it include water, wood, wind, solar, geothermal, landfill gas, and other forms of renewable energy. Renewables are about 7 percent of the energy pie. Wind and solar are, in percentage terms, the world's fastest growing energy sources. But in the grand scheme of things, they remain dwarfed by fossil fuels.

Pick Your Poison

Many people have no love for nuclear reactors, but they provide 20 percent of



Chairman's Corner

with *Jaya Pichumani*



I would like to take this opportunity to invite you to the upcoming Renewable Energy Roundup. As many of you know, this is the 3rd year that TXSES, in conjunction with Texas Renewable Energy Industries Association, has coordinated this outdoor festival full of ideas for sustainable living. For those of you who have been before, this year's event won't disappoint and will have many new seminars, exhibits, demonstrations and workshops. You'll spot many of the familiar faces you've seen in the past, as well as meet many more. For those who haven't been before, I highly encourage you to attend. The Roundup is a nationally recognized event that draws people from throughout the country. Take advantage of the fact that it's right in our backyard.

This event ties in many elements of sustainability rather than focusing on one particular area, which really does allow you to get a broader look at stepping lightly on our earth. You won't find a gathering of like-minded, sustainable-thinking individuals such as this anywhere else in the southwest.

Many of us aren't in positions to be able to incorporate active renewable energy technologies into our homes or business, but there are many other things we can do that are equally effective. The Roundup provides us with many of these ideas, and there is absolutely something for everyone, for any level of involvement. Even if you

only take back with you one small idea, it can make a world of difference. You'll learn many ways to incorporate sustainability into your life from simple steps, such as purchasing green power, buying or growing organic produce and using water wisely, to more involved actions, such as building healthy and environmentally sound homes, adding solar, wind or other renewable energy technologies to your building, or buying hybrid or alternative fuel vehicles (many of which will be on display for test drives!).

And let's not forget the family tent with a multitude of activities for children as well as for their parents, too. Children can make pizza box solar cookers, plant organic seeds, race solar cars and many, many more fun and educational activities.

We hope you'll join us this year on the Marketplatz in downtown Fredericksburg for some sun, food, good music and a chance to learn more about green living and sustainability!

Jaya Pichumani is the Engineering Manager in the Advanced Energy Division of CSG Services.

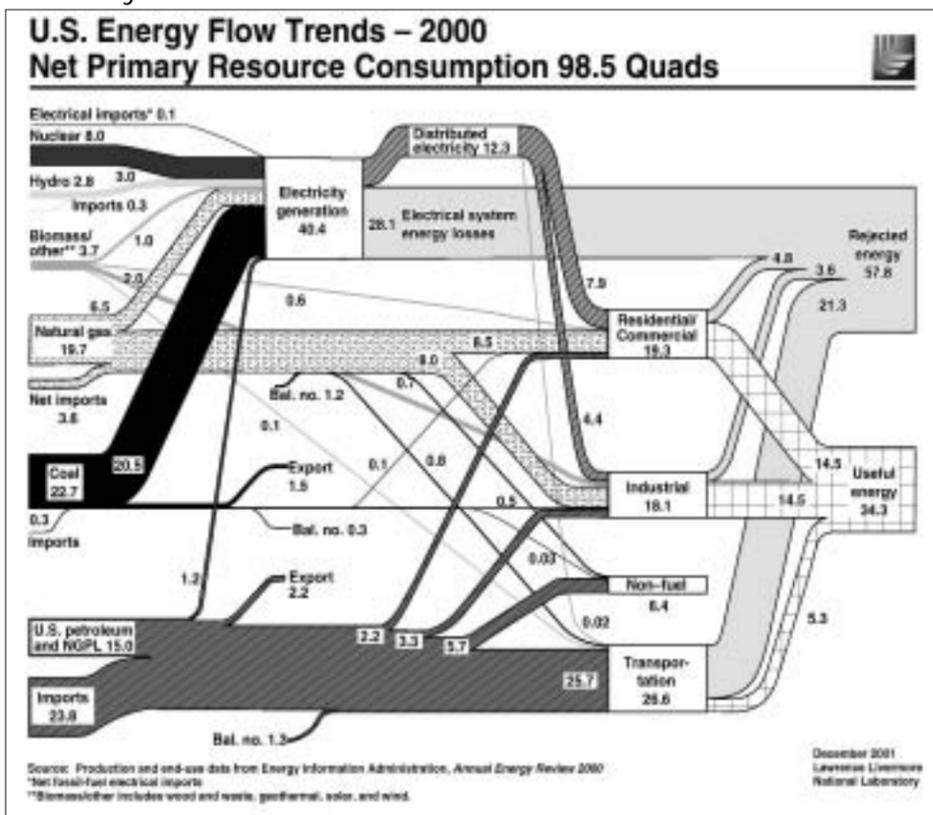
Volunteer at the Roundup!

It takes many hands to make the Roundup a success and we need yours! Help out for a 4-hour shift and get a free Roundup 2002 tee shirt, a 3-day pass and a \$5 coupon good for a meal at the Chuck Wagons. For each additional 4-hour shift, you will get a \$5 food coupon and a workshop of your choice for free (a \$45 value). For more information on volunteering go to the web site (see URL below and click on "Volunteer to Help" link) or call toll free:

866-SUN-FAIR

www.RenewableEnergyRoundup.com

Belly of the Beast con't



the nation's electricity, and about 8 percent of total energy. No nuclear plants have been ordered since 1980. We haven't figured out what to do with the radioactive waste.

On the other hand, nukes don't produce greenhouse gases. Is a nuclear "renaissance" on the horizon? The Bush administration would like to see it happen, but most utility experts think it's highly unlikely.

Excreta

Our economy is not, metabolically speaking, a thrifty creature. About 55 percent of the energy that flows into the economy is ejected as T. Rex dung. This waste carries with it a huge pollution and climate burden.

Vice President Cheney said that "conservation may be a sign of personal virtue, but it is not a sufficient basis for a national energy plan." Despite this belief, it is obvious that T. Rex Americus must become more efficient if it wishes to continue growing. As Amory Lovins and others have noted, more efficient appliances, lightbulbs, or cars that save one unit of energy on the right side of the chart, avoid the need to pump in three or four or five additional units of energy on the left.

Looking Ahead

Energy systems change slowly. History shows that none of the existing energy flows or prime movers will cede its position without a fight. If fuel cells aim to displace internal combustion engines, they will have to battle for market share. Likewise for hydrogen, which today does not appear on the chart.

In the long run, of course, renewable energy is destined to supply a bigger share of the load. But despite the depletion problems that face both oil and natural gas, fossil fuels will remain dominant for decades to come. Of course, that's at a

national level. At a household level, anyone can begin to embrace energy efficiency and wind, solar, or geothermal energy. And tens of thousands of families have begun to do just that.

Many thanks to *Home Power* magazine, where this article first appeared.

Credit for the energy flow chart is given to the University of California, Lawrence Livermore National Laboratory, and the Department of Energy, under whose auspices the work was performed. This and charts for previous years are available at: <http://en-env.llnl.gov/flow>.

Since August 1994, Randy Udall has directed the Community Office for Resource Efficiency (CORE), a nonprofit organization in western Colorado. CORE promotes renewable energy and energy efficiency in partnership with Holy Cross Energy, a rural electric utility serving 50,000 customers. Holy Cross now leads U.S. utilities in the percentage of its customers who buy wind power. In 1998, CORE started the first "solar production incentive" program in the US; the program pays customers who install PV systems 25¢/kilowatt-hour for their energy. In 2000, CORE started the world's first Renewable Energy Mitigation Fund, which has collected \$1,500,000 in building permit fees to install renewable energy systems. Articles about CORE's work have recently appeared in Public Power, the New York Times, Christian Science Monitor, Environmental Building News, and Rocky Mountain News.

Mr. Udall will be giving a keynote presentation, "Power Surge: America's Energy Challenges and Renewable Energy Opportunities," at the Roundup on Sunday, September 22, at 12:30 p.m.

The Nurturing Home

"Naturally, should you really want to live in a way and in a place which is true to this deeper thing in you, which you honor, the house you build to live in as a home should be integral in every sense. Integral to site, to purpose, and to you."

—Frank Lloyd Wright

Home should be a refuge, a sanctuary—an escape from the pollution and the noise and the uncontrollable nature of the outside world. And until very recent history, homes across the world have been just that. In ancient India, houses were designed according to a system of formulas that aligned the homeowner's energies with the planets and the earth's energies—connecting people

with the natural world rather than cutting them off. In Japan, simplicity and natural materials have been the norm for centuries; the traditional Japanese home is the epitome of peace and uncluttered serenity. Indigenous people in the Americas built sheltering homes into the sides of cliffs and out of the earth beneath their feet. As recently as the early twentieth century, our grandmothers kept nurturing homes through a combination of common sense and love.

The unifying thread in all this wisdom is a holistic perspective that connects home, earth, and spirit. Quieting the mind, clearing the clutter, and paying reverence to nature—both its bounty and its boundaries—are key pieces. It's all about discovering what you want your home to provide for you—and taking steps toward that goal.

In our quest to create homes that nourish both ourselves and our planet, we need to understand that the seemingly mundane—from the paint we choose to the way we clean our bathrooms—are what make the difference. Start small—really small. Bring a lamp into the bathroom and bathe by softer light. Plant a sweet potato vine and let it climb in your kitchen. Throw out the chemical-laden furniture polish and rub olive oil on your mahogany. When motivation strikes, move onto bigger projects such as ripping out carpet, a huge source of volatile organic chemicals in the home—but only when you feel ready. The key to a happy home is the same as the key to a happy life: acceptance.

A few things to think about in your quest to create your nurturing home:

-- **Connect with nature.** A nurturing home doesn't seal off its occupants from nature but allows them to understand that they are part of it.

Strategically placed windows to take advantage of cross breezes, skylights for moonwatching and stargazing, and sheltered porches, patios, and courtyards that allow you to be outside in all seasons are crucial elements of a home that nourishes body, mind, and spirit. Can't make this kind of big, structural changes? How about bringing in a seasonal branch, flowers, or dried stalks to celebrate nature's cycles?

-- **Purify.** Health hazards such as lead, asbestos, carbon monoxide, and radon can cause chronic and acute health problems, while allergens such as dust, pollen, and animal dander lead to asthma and allergies. The first steps in purifying your indoor air are proper ventilation and elimination of the pollutants—but if that fails, indoor air filters and whole-house ventilation systems are readily available. Keeping the proper balance of moisture in the air

is just as important; you may need a dehumidifier or a humidifier to keep the relative humidity inside your home between 30 and 60 percent.

-- **Look into light.**

Recently, Canadian researchers compared children whose school was lit by natural light with kids who studied

under artificial lights. The children who spent time in natural light grew more, had less tooth decay, had better attendance, displayed better spirits, and performed better academically. Natural light—crucial for the production of serotonin (the "feel good" hormone that regulates sleep and daily body rhythms) and for the stimulation of vitamin D—is one of the most nurturing elements you can bring into your home. And while electric lights can't replicate these effects, they have come a long way in the past decade. Full-spectrum and compact fluorescents are the way to go.

-- **Sleep on it.** We spend a third of our lives in our bedrooms, and it is there that our bodies do the important work of rejuvenation. The liver, which detoxifies the body, works best while we sleep—so creating a peaceful, healthy sleeping environment should be top priority. Traditional polyurethane foam mattresses encased in polyester emit harmful chemicals, make for a clammy sleep environment, and harbor dust and dust mites. Now readily available, organic cotton and wool mattresses breathe and draw water vapor away from the body, keeping body temperature more constant. Latex mattresses, blown from natural rubber, are durable, non-allergenic, and resist moisture buildup. Replacing conventional sheets and comforters, which are laden with harsh chemicals such as chlorine, dyes, and formaldehyde, is also key to a safe, healthy night's sleep.

continued on pg 3

The Weed Connection

We all need to be reminded of the primacy of agriculture. We all know that farming came first, once mankind paused after the hunt to harvest plants. Women were the first farmers and homemakers. Then as now, the greatest share of any economy had to do with the production of food, clothing and shelter. Then as now, the welfare of that industry determines the wealth and welfare of a nation.

So why are we here, at this particular juncture in history? We are here because agriculture has never discerned, on a broad spectrum at least, the nature of the weed connection. Our land grant colleges are still not entirely aware of the fact that the anatomy of weed and insect control is seated in fertility management, and not in getting more powerful herbicides from Dow Chemical or Monsanto. We are here because weeds and their insect fellow travelers are an index of what is wrong with a soil system, or at least what's wrong with a farmer's fertility equation. The old Vermont folklore farmer was more correct than the loftiest university professor when he said, "When you find weeds invading your grassland sward, fertilize. Weeds are a lot like human beings and civilizations--make them too prosperous, and they will perish." Once nature reaches climax development, crops crowd out lower phylum plants. But when fertility falters, the weeds arrive. With rare exceptions, they live on less.

Sir Albert Howard, hard on the heels of World War II, saw two basic errors enter and take command of the institutions of higher education: partial and imbalanced fertilization, and toxic rescue chemistry. Our organic farming leaders quickly read this assessment to mean that N, P and K fertilizers and chemicals of organic synthesis were the same side of the same coin. This confusion has delayed, but not annihilated, a valid analysis of the weed connection.

Today, two systems of weed control are before the world. One looks to annihilation of species and varieties with killer technology. The other suggests a natural balance, with energized crops grown in rich, organic soil protecting them against uneconomic weed competition. One



accepts a byproduct of instant death, lingering illness and a cancerous legacy for the human, animal and plant population. The other seeks to enforce weed control before the fact of competition and costly crop loss without the obscene presence of toxic chemistry. One system delivers pauperism, ignorance, depopulation and barbarism to farmers. The other increases wealth, intelligence and civilization. One represents sunset technology. The other will pace mainline farming in Century 21.

I have to admit that, once upon a time, I fell for the sales pitch of the chemical skills. Anyone who develops blisters pulling weeds out of potato patches and cornfields tends to get pretty primitive, and annihilation of the weed tribe seems something devoutly to be wished. I was working with the National Park Service one summer in the late 1940s. Each morning our trail crew climbed Battle Mountain

in Rocky Mountain National Park for the noble purpose of eradicating blister rust on white pines. The method of attack had a proprietary name, Weedone, which was really 2,4-D as a brand. The idea was to scarify the roots of the ribe bush and apply 2,4-D to the known residence of the organism that offended the white pine.

Many of the workers carelessly washed their hands in Weedone, and some ended up sick near to death.

Something was wrong here. Why should a product pronounced safe by our betters have such a lethal effect? A few years later, while handling an editorial pencil at *Veterinary Medicine* magazine, I helped publicize the establishment of Poison Control Centers nationwide. These centers were created and blessed by the scientists of government so that agriculture could invoke a dangerous alchemy in the struggle with weeds and insects. From the first, manufacturers and users of 2,4-D and 2,4,5-T asserted that these were merely harmless weed killers, but in fact many members of nature's community, especially women and children, were endangered and victimized by its use.

2,4,5-T (2,4,5-tetrachlorophenoxyacetic acid) and 2,4-D (dichlorophenoxyacetic acid) are chlorinated hydrocarbons and have the effect of hormones on plants, stimulating their growth until veins and bark burst open, causing death and rapid decay. Applied by helicopter as a spray to be absorbed through the leaves, or injected

baking soda, lemon, and borax (and maybe a little muscle) can do the job? Our grandmothers understood this, and they also knew that keeping everything clean and dry—banishing mold and mildew—would go a long way toward ensuring the family's health.

Robyn Griggs Lawrence, editor-in-chief of Natural Home magazine, has the dramatic backdrop of the Rocky Mountains to inspire her as she sets the editorial tone for the popular lifestyle publication. Herself a proponent of natural living, Lawrence brings a unique understanding of the difficulties of living a natural lifestyle in an imperfect and often unnatural world. She has more than 18 years' experience as a journalist. She joined Natural Home in 1999, after serving as editor of The Herb Companion and Mountain Living magazines. She has written and spoken on topics ranging from eco-building to spiritual design to organic gardening. Lawrence's journalism career has included reporting and editing positions at The Chicago Tribune, Adweek and InformationWeek as well as credits in Cosmopolitan and the Boston Herald.

Ms. Lawrence will be giving a keynote presentation, "Where the Heart Is: Home as the Place To Create Daily Sustainability," at the Roundup on Saturday, September 21, at 12:30 p.m.

Nurturing con't

-- **Give yourself room to grow.** Our homes keep getting bigger, but we forget to add spaces that matter. Most adults today don't have a room or a space to call their own—a place to go to get away from the family, to meditate and contemplate, to just be still. Creating a quiet place for meditation and escape is crucial to maintaining sanity in today's technoworld. This can be an attic space, a small corner, a large designated room—but it should be in the quietest part of the house. If space is tight and you don't have the square footage for a dedicated room, create a meditation space by hanging a special photo on the wall and unrolling a yoga mat or a rug when you need reflection time. Just don't allow yourself to miss the pleasure of having your own sacred space.

-- **Clean up your act.** Let's face it. You're going to clean your house a lot more often than you remodel or redecorate. And the products and methods you use can go a long way toward creating a safe, healthy home. Chemical-laden cleaning products cause 5 to 10 million accidental poisonings each year—most of them children. Fumes from these products can lead to chronic illness or severe allergies, and the EPA cites artificial fragrances in cleaning products as an indoor irritant and pollutant. Why bother to bring these poisons into your home when vinegar,

More Than Price

"The bull snakes vanished," says Del Akerlund, surveying the 800-acre farm near Valley, Nebraska, that he and brother Val farmed for all of the time *Acres U.S.A.* has been reporting the scene. "Wildlife became scarce to the point of extinction."

With these observations, the Akerlund brothers invoked logic. There was something wrong with agriculture besides "price and only price." Del and Val had been farming on the basis of university advice for 24 years. They were leaders in the National Farmers Organization and doers of the word according to USDA. They were the first to use salt fertilizers in abundance and toxic rescue chemistry, always farming more land and consuming valued equity in the process. The loss of migratory birds prompted a return to the solid values of nature.

Before Del and Val took up farming, their father practiced crop rotation, use of manure values, and the virtues of diversified farming. Corn, soybeans, oats, wheat, spelt and specialty crops responded then, and they responded again when Del and Val turned the corner. A good cattle crop rounded out the new equation.

Val Akerlund passed away a few years ago. Del and his wife Merle carry on, producing more bins and bushels than so-called conventional counterparts. In one recent test involving 150 acres of corn, the costs came to \$44 an acre (taxes excluded) with production of 209 bushels an acre. The same crop using salt fertilizers and rescue chemistry would have cost nearly \$100 an acre. The last 500 acres left toxic technology behind in 1967. The savings were a fantastic \$25,000 the first year. Nowadays the cost of the chemical approach for poor quality production would be around \$50,000 on the same acreage.

With this economic advantage in tow, Del sells soybeans to Japan, grain crops and beef on a private treaty basis. Withal, the Akerlund farm at Valley, Nebraska has proof that eco-agriculture is the system of the future.

directly into tree trunks, these defoliant came to be commonly used in the United States for weed and brush control and to clear cattle pastures. They were also sprayed directly on food crops. Users were warned, in fine print of course, by a long list of precautions not to inhale the fumes or spill the chemicals on their skin, not to spray near lakes, streams or dwellings, not to plant crops until three months after treatment or until the chemical had disappeared from the soil. But farmers, who too often rely on orientation, not fingerprint literature, were told not to be concerned—Father Washington approved the product.

The Bionetics Research Study by the National Cancer Institute was motivated by the widespread use of 2,4,5-T and 2,4-D in Vietnam. It revealed that "all dosages, routes and strains resulted in increased incidences of abnormal fetuses" in laboratory rats and mice. In Vietnam, a generation of deformed children was born to women who drank contaminated water in areas heavily sprayed with Agent Orange (a 50-50 mixture of 2,4,5-T and 2,4-D). Entire platoons of American soldiers, who sloshed around ankle deep in Agent Orange, made it home only to die of cancer years later. In Arizona adolescent females suffered premenstrual hemorrhaging, necessitating hysterectomies, and women over 65 years of age suffered swelling, rashes and post-menopausal bleeding when the Tonto National Forest was sprayed. I will not take space listing what the public thinks about toxic genetic chemicals in, on, or around the food supply. I will comment on the movement in which we are engaged. And a focal point for that examination is the weed.

Farmers generally view each weed as a nutrient thief. Weeds are also a drain on soil moisture and rate attention as non-economic competitors to the commercial crop. But there is more, much more, to the weed's reason for being. The Creator has decreed that each weed species be genetically keyed to replace a specific deficiency in the soil. Generally speaking, broadleaf weeds are present to correct an imbalanced ratio between phosphate and potash. This ratio should be two parts phosphate to one part potash for row

crops and vegetables, and four parts phosphate to one part potash for grasses. Grasses, such as foxtail and quack grass, generally arrive to correct a calcium deficiency. That is why grasses can be used within perm-anent crops such as orchards simply by keeping them mowed and allowing the clipping to compost back into the soil. In areas where the clippings fail to compost and in fact build up a thatch, this is a consequence of poor aeration, excessive salt concentration, or a lack of aerobic microorganisms. Succulents are the Creator's way of replenishing carbonate ions and increasing the soil's water holding capacity. Succulents also provide groundcover and protect fragile soil from erosion and dehydration. For these several reasons it is correct to state that maintenance of proper phosphate and calcium levels will roll back more weeds than all the herbicides the market has to offer.

Toxic technology is sunset technology. There are those who will continue to use chemicals of organic synthesis as though it represented high technology, but nature will answer that this is war and you are using weapons that will backfire.

Charles Walters is the founder and executive editor of Acres U.S.A., the monthly journal of ecological agriculture. For more than 30 years he has been promoting sustainable agriculture, visiting farms around the world and meeting innovative farmers. He has authored thousands of articles on the technologies of eco-agriculture and is author of many books on the subject, including EcoFarm, Weeds: Control Without Poisons, Neal Kinsey's Hands-On Agronomy, Mainline Farming for Century 21, The Carbon Connection, The Carbon Cycle and others. A leading proponent of raw material economics, he served as president of NORM and has authored several books on economics. For more information on Acres U.S.A. visit www.acresusa.com or call 800-355-5313.

Mr. Walters will be giving a keynote presentation, "Sustainable Living Starts with the Soil," at the Roundup on Friday, September 20, at 1 p.m.



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Most of us have never thought about our electricity service. If the lights work, why fuss with it, right? Well, now there is a reason. Green Mountain Energy Company, based in Austin, offers 100% pollution-free electricity generated solely from wind farms in Texas. Buying Green Mountain EnergySM electricity gives you an easy way to help clean the air we breathe. In fact, when you buy *Green Mountain Energy* electricity, in one year you can prevent as much carbon dioxide emissions as your car makes in 22,000 miles.

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Chapter News

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Texas Solar Energy Society wishes to thank the following members who have supported us with \$100, \$200 and \$300 level memberships:

Randy Combs, Tom Fitzpatrick, Robert Foster, Terese Hershey, Scott Lenharth, Jane Pulaski, Paul Weatherall, Chuck Wright

The following companies have chosen to support the Texas Solar Energy Society's educational mission by joining at the business level:

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And special thanks and kudos to the following businesses for joining at the higher levels of support:

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Business Membership:

\$100 \$250 \$500**

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ASES Membership:

\$55 discounted American Solar Energy Society membership for current TXSES members

School Fund:

\$25 Check here to contribute an additional \$25 to the TXSES school fund.

This money is dedicated to support renewable energy projects in Texas classrooms.

Total due: \$ _____

Make check payable to: TXSES

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The Winston Report - Solar Challenge and Solar Power

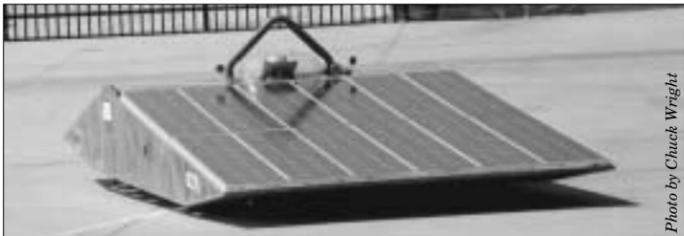


Photo by Chuck Wright



TXSES volunteers Mike Landrus (middle photo far right) and Chuck Wright (right) during the "Scrutineering" phase of the race determine that the cars are safe to take on the 3-day speed challenge held this year at The Texas Motor Speedway near Dallas.

TXSES Photographer and volunteer, Judy Pearson, in desperate need of a phone book, takes time out to test drive the demo car designed by The California Solar Education Team (CalSET) consisting of Matt Sandt and William Shih. Built for under \$12,000 this car handles like a dream. Look for a full report on the Winston Solar Challenge in an up coming Reflector.



This solar facility which is owned and operated by Nuon, was recently installed at the Winston School in Dallas thanks to Green Mountain EnergySM electricity customers who support solar energy in Texas through membership in the Big Texas Sun ClubSM. The 594 panels produce up to 57 kilowatts of pollution-free electricity, and will prevent about 68 tons of carbon dioxide emissions each year.

The Texas Solar Energy Society (TXSES) was founded in 1976 and is a non-profit educational organization formed to increase the awareness of the potential of solar and other renewable energy applications and to promote the wise use of these sustainable and non-polluting resources.

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