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Gore: EPA to work with Ag Dept. on FQPA of '96

WASHINGTON, D.C.

A memorandum from Vice President Al Gore gives professional pesticide-user industries hope that the U.S. EPA will not soon be banning organophosphate pesticides.

Gore on April 11 sent a memorandum to EPA Administrator Carol M. Browner and Agriculture Secretary Dan Glickman telling them to work together to implement the Food Quality Protection Act (FQPA) of 1996. The memo stressed that one of the purposes of the Act is to protect children's health, but it also urged the EPA to base any decisions it makes on pesticides on sound science. The EPA claims that low-level exposure to organophosphate pesticides could affect brain development in a fetus or young child.

Gore, in his memo, set out four principles for EPA to use in reaching its decisions:

- ▶ that they be based on

sound science,

- ▶ that farmers and other affected people be aware every step of the way,

- ▶ that there be a transition period and alternatives made available if any chemicals are banned,

- ▶ and that the public be consulted.

Gore's action appeared to be in response to mounting pressure from farm and food groups fearful that the EPA would ban that particular class of pesticides.

RISE (Responsible Industry for a Sound Environment), which represents speciality pesticide suppliers and end-users, welcomed Gore's directive. RISE said it was "encouraged about the Administration's call for broad stakeholder participation. We believe that broad and balanced participation is key to full and fair implementation of FQPA."

El Niño sows questions on seed crop, prices

The El Niño may affect both the availability of certain varieties of turfseed and the cost of bringing it to market.

Wet weather this winter and early spring in California, some of the Southwest and also parts of Florida delayed landscape projects. Meanwhile, spring's early arrival in most of the rest of the country caused landscape managers to struggle with the workload, particularly mowing.

"Now they're worried about how to keep it mowed, not when to seed it," says Tom Stanley at Turf-Seed Inc., in Oregon. "It's been too wet to get the equipment on."

The outlook this spring was for stable seed prices, says Stanley. The crop seemed to be in good shape. But other factors could surface as the season progresses. For instance, there's some concern that the crop will mature too soon.

"An early harvest is not necessarily a good harvest," reports Jack Zimmer of Seed Specialists in Coeur d' Alene, ID. "We need some drying to bring this crop around."

"The crop is maturing earlier than it has in previous years," adds John Cochran at Turf Merchants Inc. (TMI), Tangent, OR. "You can't really tell yet but there's an old saying, 'An early crop is a light crop.'"

"Many fields are in an advanced state of growth due to the warm, wet weather," adds TMI's Steve Tubbs. "This puts the crop on track to be earlier than normal, which historically has meant a light crop."

Turf seed producers say the coming several weeks hold the key to this year's crop. And, perhaps, to prices.

"Commodity prices are affected by speculation of what the demand will be, the actual demand, and unforeseen pressures such as drought or a poor crop. Since seed production is tied to weather, level of demand for a particular species or cultivar, acreage available for harvest and the clairvoyance of the growers, it's a risky business," says a spokesperson for the Albright Seed Company, Camarillo, CA.

Because of The El Niño it seems to be even riskier in 1998.

James E. Guyette

Handheld gasoline powered equipment outlook for 1998 foresees just modest sales increases

The Portable Power Equipment Manufacturers Association, a 19-member trade association, has released shipping information for 1997. Based on shipments of equipment for 1997, shipping demands for 1998 have been estimated.

Equipment	Units Shipped 1997	Change from 1996	Estimated Increase for 1998
Chain Saws	2,172,800	◊ 5.4%	◊ 1.5%
Trimmers/Brush Cutters	3,684,000	◊ 3.7%	◊ 3.0%
Hand Held Blowers	1,196,900	◊ 2.3%	◊ 2.0%
Backpack Blowers	188,000	◊ 7.0%	◊ 4.5%
Hedge Trimmers	276,000	◊ 18.5%	◊ 2.5%
Cut Off Saws	97,3000	◊ 12.5%	◊ 2.0%
Stick Edgers	47,000	◊ 14.5%	◊ 3.0%

Prescription soils cure turf ills

'Designer soils' — soils or root zone mixes blended with certain desired properties — are used to improve site conditions such as drainage, aeration and water retention.

by NORMAN W. HUMMEL JR., Hummel & Co. Inc.



An ample supply of a screened soil of the same texture is probably more important than the texture itself.

Last year, a major university had to replace two athletic fields that were little more than two years old. The school's new fields didn't drain, they were extremely hard, and the turf on these fields had very poor rooting.

The architects failed to properly design the soil or root zone mix for these fields, resulting in their failure. Unfortunately, this scenario plays itself out quite often on both athletic fields and golf course greens.

The physical properties of golf course greens and natural turf sports fields profoundly impact the performance of the turf growing on them. High performance turf-grass areas such as greens and sports fields demand free draining root zone mixes that have good compaction resistance and good aeration. In addition, sports fields have a special need for surface stability; an area where many very high sand media fail.

Designing soils to have certain properties is not new in the golf industry. Since the USGA specifications were first published in 1960, laboratory testing has been used to design root zone mixes or soils. The purpose of this testing is to design a mix that has desirable physical properties, such as good drainage, aeration and water retention.

The design process

The first step in designing a soil or root zone mix for an athletic field or green is to select your raw materials. Sands should be of the particle size shown in Table 1. There is not much room for compromise. Research has consistently shown that sand sized between 0.25 and 1.0 mm in diameter is most desirable for a free draining growing medium. Coarser, uniform sands are acceptable for athletic fields, and are desirable where soil will be in the mix.

Peats and compost vary immensely in quality. You should employ the services of a competent soil physical testing laboratory to test the quality of your organic matter source. The USGA recommends that a peat have a minimum organic matter content of 85 percent, which is a good guideline. We recommend that composts have a minimum organic matter content of 60 percent, are screened to $\frac{1}{4}$ inches, and are proven to be non-toxic to plants.

Soils are often added to sports field mixes, and occasionally to greens mixes. A small amount of soil can help stabilize an otherwise soft sand. Soils in the textural classes loam and sandy loams are preferred, but soils of other textures can be considered as well. An ample supply of a screened soil of the same texture is probably more important than the texture itself.

Different ratios of the raw materials are blended into different mixes for testing. The mix ratios tested are often based on the gradation of the sand, and the experience of the lab or soils consultant.

Using ASTM (American Society of Testing and Materials) test methods, a series of tests are run on the mixes to determine their physical properties. First, cores containing the mixes are compacted to a standard level. One of the first tests run on the compacted cores is the infiltration rate. Again, one of the goals of this testing is to design a mix that will drain, even under compacted conditions.

The total porosity is the percentage of a volume of soil that is the pores or voids between the sand grains or soil. Some of these pores are large in diameter, and conduct water under saturated conditions. When drained, these pores fill with air and provide oxygen necessary for root growth. These are called the aeration porosity.

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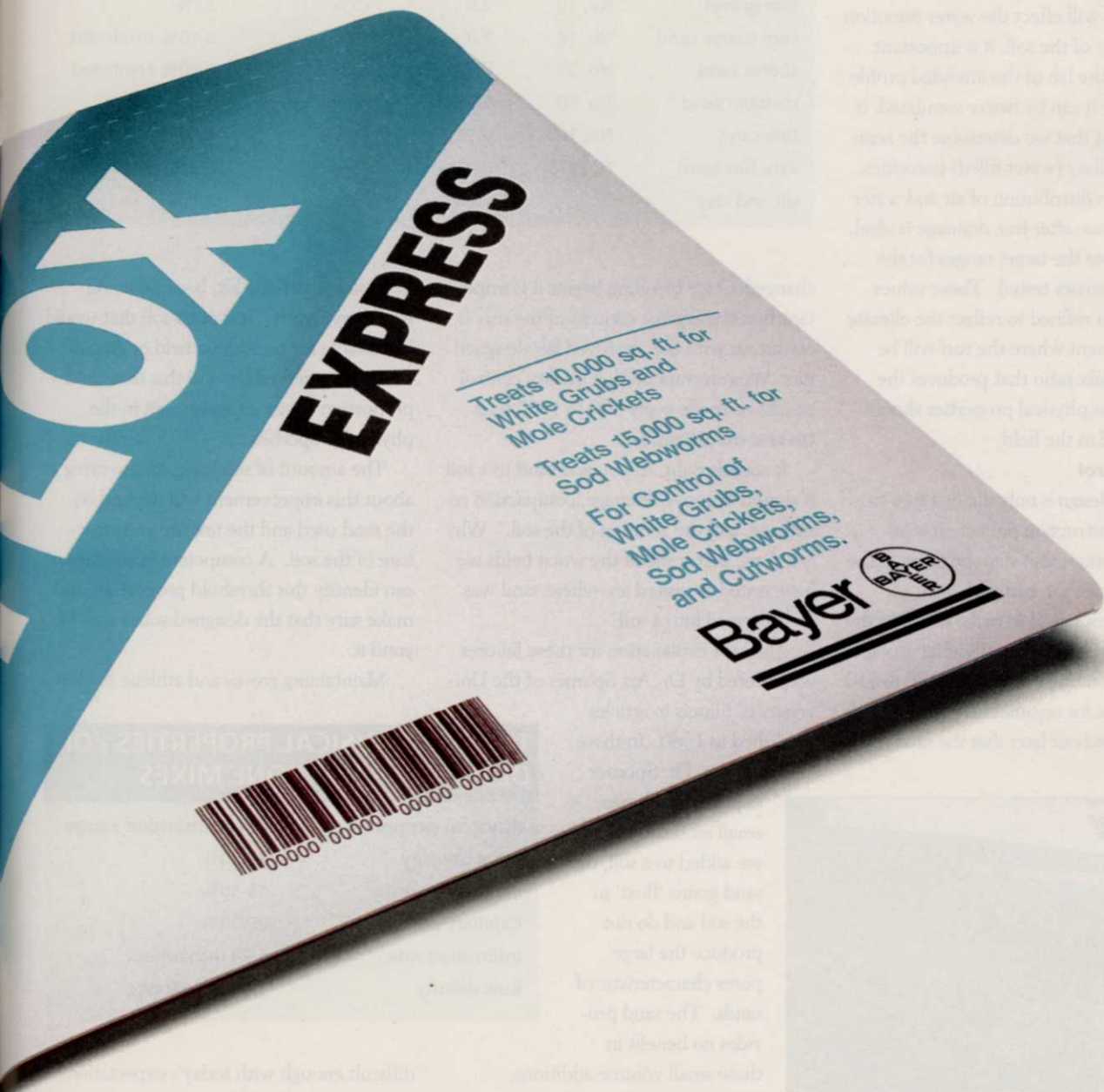


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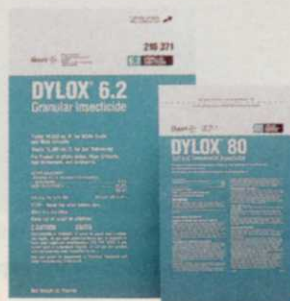
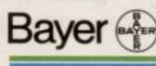
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Field capacity is the point where all gravitational water is removed from the soil by free drainage. The lab simulates field capacity by pulling water out of the cores at a known suction. Since the soil profile depth will effect the water retention characteristics of the soil, it is important that you tell the lab of the intended profile depth so that it can be better simulated. It is at this point that we determine the aeration and capillary (water filled) porosities. A nearly even distribution of air and water filled pore space after free drainage is ideal.

Table 2 lists the target ranges for the physical properties tested. These values can be further refined to reflect the climate and environment where the turf will be grown. The mix ratio that produces the most desirable physical properties should be duplicated in the field.

Quality control

The mix design is only the first step to a successful construction project. It is extremely important that steps be taken in the field to duplicate the best mix.

Recheck your sand to make sure that the particle size is consistent with what was sent to the lab. You don't want to pay \$6 to \$10 per ton of mix for organic matter and blending, only to find out later that the sand had



A properly designed soil or root zone mix will make it an easier job for you to meet the expectations of your customers.

TABLE 1. RECOMMENDED SAND PARTICLE SIZE FOR GOLF GREEN AND ATHLETIC FIELD ROOT ZONE MIXES

Size class	Sieve No.	Particle diameter	Athletic fields % retained	Golf Greens
fine gravel	No. 10	2.0	<5%	≤3%
very coarse sand	No. 18	1.0	5-20%	≤ 10% combined
coarse sand	No. 35	0.5	>60%	≥ 60% combined
medium sand	No. 60	0.25	combined	
fine sand	No. 100	0.15	0-15%	0-20%
very fine sand	No. 270	0.05	0-3%	0-3% 0-5%
silt and clay		<0.05	0-3%	0-8%

changed. Once blending begins it is important that the organic content of the mix is consistent with the approved lab-designed mix. We recommend that quality control checks be made every 500 to 1000 tons.

On site modification?

It sounds right: "if you add sand to a soil it should improve drainage, compaction resistance, and the aeration of the soil." Why is it then, that some of the worst fields we have tested or visited are where sand was incorporated into a soil?

The best explanation for these failures was offered by Dr. Art Spomer of the University of Illinois in articles published in 1980. In those articles, Dr. Spomer explains that when small amounts of sand are added to a soil, the sand grains 'float' in the soil and do not produce the large pores characteristic of sands. The sand provides no benefit in these small volume additions.

As more sand is added, the total porosity of the soil will decrease until you reach a threshold proportion. At this point, there is sufficient sand for there to be sand to sand contact. Unfortunately, there is also enough soil in the mix to completely fill the voids between the sand grains. It is at this point that the soil would probably be best for the base

of a road or parking lot, because it will pack very tightly. It is not a soil that would be suitable for an athletic field or green. You must get well beyond this threshold proportion to see improvement in the physical properties..

The amount of sand required to bring about this improvement will depend on the sand used and the texture and structure of the soil. A competent laboratory can identify this threshold proportion, and make sure that the designed soil is well beyond it.

Maintaining greens and athletic fields is

TABLE 2. PHYSICAL PROPERTIES FOR DESIGNED ROOT ZONE MIXES

Physical property	Recommended range
Total porosity	35-50%
Aeration porosity	15-30%
Capillary porosity	20-30%
Infiltration rate	6-24 inches/hour
Bulk density	1.35 to 1.60 g/cc

difficult enough with today's expectations for quality and high demand for use. A properly designed soil or root zone mix will make it an easier job for you to meet these expectations. The testing of a soil or mix will not guarantee that your greens or athletic fields will succeed, but it will greatly minimize the risk for failure. **LM**

The author is president of Hummel & Co., Inc., Turfgrass Soil Consulting and Diagnostic Services, Trumansburg, N.Y.

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Echo saw is powered by a 33.4 cc, two-stroke engine. Some saws have chain guards. Operator should stand on the side of the trunk opposite the limb being cut.



Deere CS series saws weigh in at about 10 pounds.

CHAIN SAWS

By CURT HARLER/ Contributing Editor

Dress for success when using a chain saw.

Safety goggles are a must to protect those baby blue eyes. A full face shield is better, as it protects the face from flying chips and reduces the likelihood of a sudden flinch which could misdirect a running saw toward other parts of the body.

Leather is the fashionable fabric for saw operators this season and any season. Anyone running a saw should have a pair of high-quality leather gloves with double palms. Some logging-supply catalogs offer heavy-duty gloves with Kelvar, the same fabric used in bulletproof vests. Although these gloves can cost over \$100, they make the statement that you're serious about protecting workers' fingers and hands.

Every landscape worker should own a good pair of heavy-duty work boots. Those who use saws should have leather boots with steel caps to protect from chain-saw cuts and from falling branches.

Top off the wardrobe with a good hard hat. It will protect the operator's head from falling limbs or branches. A properly fitted hat is cool, comfortable and has a good internal suspension to cushion the head from falling debris. Round out the look with a pair of OSHA-approved ear muffs. Since saws can easily exceed noise levels of 90-100 decibels, be sure anyone in the area is wearing earplugs.

Loose-fitting or flapping clothes are definitely "out". The operator should wear nothing which could potentially be caught up in the chain.

Accessories for the well-dressed saw operator include a good sharpening guide. A decent one will run about \$25. Make saw sharpening a regular part of the sawing routine. Do it at least once a day.

More than any other tool used in the landscaping business, the chain saw requires skill and training for proper operation. Safe sawing starts with the purchase of the saw. Look for saws with inertia-activated chain brakes. These are engineered to stop the saw instantly and reduce the chances of serious "kick-back" injury.

Buy a saw with an anti-kick nose guard, quick-stop brake and a full wraparound hand guard. Kickback, caused when a



Shindaiwa 448

saw hits an obstruction, accounts for over 30 percent of chain saw accidents.

Pick up a saw and test its weight and balance. Make sure that all controls are simple to operate and easily accessible. There should be no sharp corners or protruding parts on the motor housing, which have a way of grabbing on clothes. The muffler and other key parts should be enclosed.

The muffler exhaust should be directed away from the operator's face. Several other features are worth having. Spark arresters are required in some areas of the country. They keep sparks from being thrown by the exhaust. A safety tip covers the chain as it passes around the nose of the guide bar. It reduces the chance of kickback by keeping the chain from contacting anything at the guide bar tip. Throttle lockout guards against unexpected saw chain motion. Buy a saw with a good vibration reduction system, to reduce operator fatigue.

Do not allow an operator to make cuts with the saw between his legs. It is also bad form to straddle the limb being cut. Be aware of the direction the chain will go if it breaks, and keep people clear of this area.

Some saws have chain guards. The operators always should stand on the side of the trunk opposite the limb being cut.

The following are some of the leading chain saw suppliers and the products they sell.

CHAIN SAWS

COMMERCIAL LANDSCAPE SUPPLY

800-635-8686

Circle No. 250

The CS-6700 saw from Commercial Landscape Supply, Irvine, CA has an Echo 66.7 cc 2-stroke engine with Pro-Fire Electronic Slope



Be aware of the direction the chain will go if it breaks.

advanced ignition system. It automatically senses engine speed, then advances ignition timing for optimum cutting power. The chainsaw has a fuel capacity of 21 ounces and oil capacity of 10.5 ounces. Unit comes with a standard 24-inch bar and chain. Optional 16, 20 and 27-inch bars are available.

JOHN DEERE

800-537-8233

Circle No. 251

The 200CS, 230CS and 300CS from John Deere, Research Triangle Park, NC, weigh in at about 10 pounds, but are tough enough for everyday use. With engines rated at 2.0 and 2.3 cubic inches, the 200 and 230 can be equipped with 12, 14 or 16 inch guidebars. Both have electronic ignition and the Safe-T Tip anti-kickback device. The 300 has a 3 cubic inch engine and an 18-inch Power Tip guide bar that cuts at 9000 to 9500 rpm.

ECHO, INC.

847-540-8400

Circle No. 252

Buy the CS-3450 chain saw from Echo, Lake Zurich, IL and get the protective carrying case, quart

of bar and chain oil and an extra loop of chain in the package. Saw is powered by a 33.4 cc two-stroke engine with ProFire electronic ignition. It features a fuel capacity of 8.5 ounces, oil capacity of 5 ounces, yet weighs just 7.8 pounds. It comes with a 16-inch bar standard. It is backed by a one-year commercial-use warranty.

HOMELITE

704-588-3200

Circle No. 253

Homelite's 3300 series offers four models with either 33cc or 38cc PowerStroke engines to meet a variety of needs. All models feature a precision-honed vertical cylinder for increased cutting power, engine durability and fuel efficiency; a large, sealed muffler for noise reduction; a dual stage air filter for peak performance. The 3300 series has Homelite's patented Safe-T-Tip anti-kickback device that actually eliminates kickback completely, according to the company. Kickback bars are available in 12- or 18-inches, depending on model.

HUSQVARNA

800-GET-SAWS or

800-438-7297

Circle No. 254

The Husqvarna 371XP weighs 13 pounds, yet offers a 70.7 cc engine that develops 5.4 hp. This saw handles big jobs. It can be used with bars up to 32 inches, and features all of the vibration and noise reduction features a pro would expect. Also available from the Charlotte, NC firm is the handy 257, a 3.7 hp 57 cc model that weighs 5.6 pounds.

MCCULLOUGH

520-574-1311

Circle No. 255

The ProMac line of saws from McCulloch, Tucson, AZ are designed for extensive use. The 3805AV-18 has an 18 cc engine with 18-inch bar, anti-vibration system. The unit weighs 12 pounds and has a fuel capacity 10.5 ounces. The 5000AV has a 50 cc engine and works with bars from 16 to 20 inches. Weighs 11.9 pounds.

RED MAX

770-381-5147

Circle No. 256

A full line of Pro Series chain saws is available in the RedMax line from Komatsu Zenoah America,

Norcross, GA. The 14-inch bar G310TS weighs 7.3 pounds dry. Its larger brothers include the G455AVS with 16 inch bar at 10.7 pounds; the G561AVS available with 16, 18 and 20 inch bars at 14.3 pounds; and the top-of-the-line G621AVS, which comes with 16, 18, 20 or 24 inch bar and a base weight under 15 pounds.

SHINDAIWA

800-521-7733

Circle No. 257

Commercial users can choose more than just the type of saw they need when they look at the 488 line of chain saws from Shindaiwa, Tualatin, OR. They can choose the protection and power needed for dusty conditions by buying the advanced PowerPro air filter. Other features include 2.9 cubic inch displacement, adjustable automatic oil pumps that regulate oil consumption.

SOLO, INC.

757-245-5531

Circle No. 258

A powerful 36.27 cc engine drives the 636 chain saw from Solo, Newport News, VA. The unit delivers 2 hp and features a top speed (with bar and chain) of 11,500 rpm. Inertia-matic chain brake, inboard clutch, and carburetor with all-position diaphragm and primer make this an easy-to-run machine.

STIHL

754-486-9100

Circle No. 259

Commercial-grade chain saws and accessories are available from Stihl, Virginia Beach, VA. Top of the line is the O19T with an exclusive curved side handle that allows the operator to trim trees in various positions. Unit's center of gravity is at the throttle trigger, making it well balanced for easy operation. Unit weighs 8.9 pounds.

TANAKA INTERNATIONAL

253-395-3900

Circle No. 260

The ECS-3301 from Tanaka, Kent, WA weighs just 7.3 pounds and features a new air filtration system that removes more particles from the air intake system for increased performance and engine life. The 32.3 cc inch engine develops 1.6 hp. Either a 12 or 14 inch Oregon bar and chain combination is recommended. **LM**