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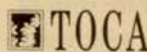
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Balled birch struggles

Q. I allowed a balled river birch to go dry for almost a week before I planted and watered it. It had already budded and less than five percent of the leaves survived. Will this tree find a way to put out new leaves or is it toast?

—WISCONSIN

A. Plants store energy reserves produced during photosynthesis the previous season in the root system. These stored carbohydrates help produce the new root and shoot growth that occurs following transplanting. Depending upon the maintenance practice of the nursery where the river birch was grown, the energy reserves may vary. However, many absorbing roots are cut off during the process of digging and balling/burlapping a tree. Only a few large roots remain with the plant.

In addition to loss of stored carbohydrates, root loss reduces the amount of water absorbed. The resultant water stress has a negative impact on all plant functions including photosynthesis, which further depletes carbohydrates. Water, either too much or too little, is the single most common cause of transplant failure.

However, trees have good recuperative potential, and will often reestablish from the transplant shock. Depending upon the reserve carbohydrates in the root system and available water, your tree may produce new leaves. In doing so it will further deplete the nutrients in the root

system so the tree must produce more carbohydrates to survive. During this recovery period maintain the health of the tree through proper mulching, watering and fertilizing. Water deeply and infrequently. Generally two inches of water per week is sufficient for clay soils while sandier soils may require more water. Be aware that stressed trees will be prone to other insect and disease problems. Monitor for pests and diseases and provide appropriate treatment.

Borer larvae eat pine terminals

Q. In our nursery we found some borer activity on Scotch pines and white pines. Most of the damage is on their terminals. From outside we don't see frass. In most cases there are some small holes right above the end of the discolored damaged terminals. When cut open the terminals had tunnels which are packed with sawdust-like frass. It is on both ends of the terminals. What is the problem? What is the remedy?

—PENNSYLVANIA

A. The pest problem sounds like Eastern pine shoot borer. This pest, since it feeds on the pith of terminals, can cause extensive damage to both Scotch pines and eastern white pines. They can also damage all two and five-needle pines, Douglas fir and white spruce. While feeding, the larvae first tunnel downward along the pith area, and then go upward. In the pith area the frass pellets will be

packed very tightly on either end of terminal tunnels. The frass is not pushed out by the insect. By late June larvae chew oblong or oval holes just above the base of the lower end of the feeding tunnels. Look for the packed frass with red brown bark tissue in the pith area on both tunnel ends. This is characteristic of Eastern pine shoot borer. By contrast, the pine shoot beetle also makes tunnels, but it produces circular holes which may have sap flow but not frass. The European pine shoot moth and Nantucket pine tip moth generally burrow into buds and stems and do not restrict their feeding to the pith. Normally, there will be only one larval feeding per terminal.

The Eastern pine shoot borer overwinter as pupa in duff, and adults emerge around late April or early May when pines break buds. They lay eggs on needles. The eggs hatch into tiny larvae which tunnel into the pith. After feeding, the larvae drop to the ground and overwinter as pupa in cocoons. Generally, by July the infested terminals will be empty. The damage from Eastern pine shoot borer is limited to main terminal leaders and lateral terminals. This deforms and stunts the tree.

Generally, insecticidal treatment is not needed unless more than 10 shoots per tree are damaged with three years of harvest. Shear or selectively remove infested branches to manage this insect. **LM**



BALAKRISHNA RAO

Manager of Research and
Technical Development
for the Davey Tree Co.
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KC airport's controlled burn aids native grasses, forbs

Airport workers used leaf blowers to make sure the controlled burn stayed that way.



The Kansas City Aviation Department's recent controlled burn at the Kansas City International Airport should enhance the appearance and health of the native grasses there. The program involves planting and cultivating native grasses, forbs and flowers to foster a natural environment and improve wildlife habitat. Lower maintenance costs and less fertilizer and herbicide use are other benefits.

Taking care to gauge wind speed, airport workers started the controlled burn along the inbound parkway at the airport during off-peak airport times. Air traffic controllers used the airport's three runways to prevent aircraft from taking off and landing in the smoke. Workers used leaf blowers

to "corral" the fire, and keep adjacent "regular" grass from igniting, while water supplies were ready if the fire spread too far.

"Fire has always been a factor determining which plants grow in prairies, and it can control most woody plants and herbaceous weeds," says Jerry Brown, field maintenance superintendent for the Aviation Department.

"At the same time," adds Brown, "[fire] can stimulate desirable plants by reducing competition from cool-season grasses. These grasses use large quantities of soil moisture and nutrients that could be available for native warm-season grasses, which are more productive and moisture-conserving."

Aviation Department Field Maintenance personnel determined that it is likely that the typical method of contending with the grass produces more pollutants than the actual burning. When smoke is produced from grass fires, it is composed mostly of water vapor, carbon, carbon monoxide, carbon dioxide and very small amounts of nitrogen oxides and hydrocarbons. There is little long-term effect on air quality because of the low levels of possible pollutants, says the Department, which suggests that mowing the grass, raking, baling and hauling the bales to storage produces pollution from the internal combustion engines. □

Pest forecast 'decision support' tool released

Pest Forecasting Group Inc. (PFG) of Wilmington, DE/Falls Church, VA, and Data Transmission Network (DTN) of Omaha, NE, have combined to offer PFG's new turf pest forecasting service, PestForeCast, to DTN's subscribers via their satellite information delivery system.

The first of PFG's three new turf management decision-support tools, PestForeCast-Turf Insects, premiered with DTN in June. PestForeCast-Turf Diseases is scheduled to be released this summer, and PestForeCast-Turf Weeds will be available in the spring of 1998.

PFG's PestForeCast-Turf Insects advisory service provides subscribers with a

series of weekly national maps forecasting the likely presence and activity of each of 16 major turf insect pests. Each map represents PFG's estimate of the likelihood that a damaging stage of a particular insect species is present and can be found by scouting at any site in each of the 344 U.S. climate zones.

Using current weather data, degree-day modeling, and insect growth phenologies, PFG employs Geographic Information System technology to color code each zone to show four levels of estimated risk for turf damage and the growth stage of the insect posing that risk. PFG monitors the annual develop-

ment of such well known turf insect pests as chinch bugs, sod webworms, mole crickets, and Japanese beetles, along with lesser known but equally damaging species like masked chafers, black turfgrass ateniens, and cutworms, so turf managers don't have to waste valuable time record keeping and calculating the accumulated degree-days needed to best employ some of today's new environmentally friendly biological or biology-based control materials.

For all industry categories

PestForeCast-Turf Insects can be used by all levels of turfgrass management from innovative IPM strategies on environmentally sensitive highly managed

DowElanco gets go-ahead for Conserve SC

DowElanco's new product, Conserve SC turf and ornamental insect control, has received an accelerated registration for sale in the U.S. under the Environmental Protection Agency's "Reduced Risk" registration program.

Conserve is derived from a naturally occurring organism and offers excellent control of sod webworms, cutworms and army worms, as well as many ornamental insect pests. Conserve, the first turf and ornamental product in the new spinosyn chemical class, combines the efficacy of synthetic insecticides with the benefits of biological insect pest control products. Because of this, Conserve offers numerous features and benefits to lawn care and landscape operators including:

- ▶ excellent efficacy on target insect pests;
- ▶ quick activity. Insect pests exhibit symptoms in minutes and turf and plant-feeding damage ceases immediately.
- ▶ a caution label. Studies on Conserve show very low impact on mammals, the environment, birds and predatory beneficials;
- ▶ a low dose rate. Conserve is highly

active at very low use rates

- ▶ low odor;
- ▶ activity on pests by ingestion and contact exposure;
- ▶ no plant phytotoxicity according to current tests;
- ▶ a unique mode of action which makes it compatible with resistance management and Integrated Pest Management programs.

In addition to providing control of lepidoptera such as Eastern tent caterpillars, gypsy moth larvae and bagworms, Conserve also controls sawflies, thrips and pod gall midges.

"We know Conserve will be a great product for lawn care and landscape operators who are currently battling sod webworms, cutworms and armyworms. This is because, above all of the product's other attributes, it is highly efficacious on these pests," says Mark Urbanowski, new products marketing manager for DowElanco.

"Professionals involved in Experimental Use Permit testing of Conserve in 1996 had great results at very low use rates," says Urbanowski. □

fine turf sites to customer responsive curative treatments at low maintenance lawn care locations. Each map's easily understood graphics can be used by golf course superintendents to alert course personnel to the possibility of insect infestations in their daily scouting activities. The 16 weekly maps can help busy sports and facilities managers to schedule scouting sessions when they are likely to be most productive.

Landscape and lawn care operators can let the service calculate the likely progress of insect infestations while they take care of the pressing needs of running a business. Further, they can use the maps to help their application personnel

master the often complex tasks of deciding if insects are present and if sites need to be scheduled for follow up actions.

PestForeCast-Turf Insects' development is the result of a collaborative effort between the principals of PFG, Christopher Sann and Robert Weinland under the supervision of Ohio State University turfgrass entomologist Dr. David Shetlar.

PestForeCast-Turf Insects is available through DTN's Optional services, and is priced at \$45.00 per quarter. For further information, contact DTN Weather Center at (800) 610-0777. □

Christian's PDC Associates Inc. is "open for business"

Phil Christian is reopening his landscape management consultant business under the name of PDC Associates, Inc. In 1995, Phil entered into a short-term venture with The Davey Tree Expert Company to develop PDC's landscape management software. That concluded, Christian says he's again consulting with landscape management contractors and real estate management companies. He can be reached at (770) 893-2080; e-mail pdc@mind-spring.com.

Environmental buys U.S. Lawns

Environmental Care, Inc., Calabasas, Calif., the largest professional landscape management and horticultural services company, just got larger with its acquisition of U.S. Lawns of Orlando, Fla. U.S. Lawns reports current annual sales of \$8 million through a network of 24 companies in Alabama, Colorado, Florida, Maryland, Pennsylvania, Texas and Connecticut. ECI, a subsidiary of Environmental Industries, Inc., reports annual sales of more than \$90 million. ECI service centers are located in Arizona, California, Colorado, Florida, Georgia, Nevada, North Carolina and Texas.

38 pass Penn State program

Thirty-eight students were awarded certificates from the Golf Course Turfgrass Management Program of Penn State University. Coordinator Heather Treaster says most students enroll in the two-year program with an eye to a career in golf course management. "Our program prepares them for that, in four, eight-week terms," says Treaster. Curriculum includes turf/tree/shrub identification, establishment and maintenance; drainage equipment; irrigation; and insect and disease control. Treaster says up to 80 students apply for the program each year. For more information, call (814) 863-0129.

[CLIPPINGS]

AgrEvo North America realigned its Professional Products Group to include the company's Green Industry Group. The Group is based in Montvale, N.J., as part of the AgrEvo Environmental Health business team, and includes a full line of turf and ornamental products. The new management team includes Curtis Orrben, national sales manager for the Green Industry Group; Jim Widman, national accounts manager for the Professional Products Group; and George Raymond, marketing manager for the Group.

RohMid L.L.C., a joint venture of Rohm and Haas Company and American Cyanamid, has named Fred Belledin and Chris Shaddy to its board of directors. Belledin is sales manager for Rohm and Haas agricultural chemical products in N.A.. Shaddy is the company's new turf and ornamental product manager for N.A.

The **Data Transmission Network** Weather Center this spring sold its 10,000th subscription, to Sand Barrens Golf Club in Swainton, NJ. The DTN service features 48-color Doppler radar maps, updated every 15 minutes, and includes

more than 100 weather maps, including four satellite maps and 20 regional radar maps. DTN is based in Omaha, Neb. Visit DTN's web site at www.dtn.com.

DowElanco initiated the second year of a two-year Experimental Use Permit (EUP) for Conserve SC Turf and Ornamental insect control. Conserve is derived from a naturally-occurring organism and offers control of many insect pests. It will be the first turf and ornamental product in the new spinosyn chemical class. The EUP for Conserve is being operated in the golf, lawn care, landscape, nursery and arborist markets. DowElanco anticipates federal registration by the third quarter of 1997 under the EPA's "Reduced Risk" registration process.

Kubota Engine Division says all current diesel engines it sells in the U.S. market (E-Series engines) comply with EPA Tier 1 Emission Regulations. The regulations go into effect on January 1, 1999, for diesels ranging from 25-50 hp. One year later, the regulations expand to include diesels below 25 hp.

Novartis Turf & Ornamental

Products is expanding its product line into new insecticide markets. Novartis recently purchased Merck & Co.'s global crop protection business. Novartis will sell Merck's Avid miticide/insecticide in ornamental, nursery and landscape markets, and plans to develop new uses and formulations for abamectin, the naturally derived, active ingredient in Avid.

The Scotts Company is building a 450,000 sq.ft. warehouse at its Marysville, Ohio headquarters. Construction began in May on the facility which will house an average monthly inventory of \$15 million in products. Robert Inman, company vice president of distribution, says the added space will consolidate much of the company's central Ohio inventories. "That will, in turn, improve our ability to service our customers," says Inman.

Dr. Charlie Rodgers, turfgrass plant breeder, joined **Seeds West, Inc.**, Roll, Ariz. Dr. Rodgers will work in the company's warm-season turfgrass breeding program with Dr. Arden Baltensperger.

The Toro Company has signed a letter of intent to ac-

quire Exmark manufacturing Company, Inc. Exmark employs about 190 people in a 164,000 sq. ft. facility and projects sales in 1997 of about \$50 million. Steve LaNasa is new national sales manager for Toro's Landscape Contractor Group.

Valent promoted Jeff Cole to manager of marketing services, responsible for monitoring supply and distribution of company products. Anita Dale became senior marketing manager for the Walnut Creek, CA, company, and Sandi Jacobsen product manager for Select and Cobra herbicides.

Rohm and Haas Company received EPA registration for revised labeling on Eagle turf fungicide. The revised label adds over 90 landscape ornamentals on which Eagle may be applied, for control of diseases such as powdery mildew, rust and others. For turf, the label adds instructions for using higher application rates for certain diseases, with correspondingly longer application intervals, up to 28 days. For a specimen label write to Rohm and Haas, Turf/Ornamental Market Manager, 100 Independence Mall West, Philadelphia, PA 19106. (800) 987-0467. Or, via the Internet at <http://www.rohmmaas.com>.

American Cyanamid Company named Ed Gajewski business director, marketing services for the Speciality Products Department. A graduate of the University of Wisconsin, Gajewski has been with the company for more than eight years. **LM**

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

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Industry healthy, but costs rising

Results from LANDSCAPE MANAGEMENT'S 1997 reader survey show that rising costs for both materials and labor are forcing turf and landscape professionals to become more budget conscious than ever before.

On-going issues like pesticide use and government regulations remain, but concerns, such as the need for reliable labor, have come to the forefront as new challenges. The green industry, like about every other industry in the United States, is screaming for honest, reliable labor, but at a price it can afford to pay.

There is also a concern about the growing shortage of skilled and experienced equipment technicians.

The survey was conducted by Readex, Inc., and is based on 574 usable responses from a sample of 1000 recipients, for a 57 percent response rate, in line with accepted standards for representative survey response.

—The editors



More than half of landscapers surveyed by LANDSCAPE MANAGEMENT say cost of materials influenced pricing, and they had experienced trouble finding dependable help.

by SHARON CONNERS/Contributing editor

For landscape contractors, preparing a bid is not as easy as a stroke of the pen. Project cost is a mixture of issues. A LANDSCAPE MANAGEMENT reader survey by Readex Inc., Stillwater, Minn., indicates that 52 percent of landscapers are concerned with the cost of materials while another 27 percent are taking competitor pricing into consideration.

Most landscapers interviewed by LM say that the cost of plant materials have risen the fastest. Materials that are highest in demand are the ones experiencing the highest increase.

"Architects tend to design in a trend towards particular plant materials," says William Canon, president of Canon Russeau Landscape Inc., Carleton, Mich. "Then those plant materials will get in a short supply and that will cause the cost of those materials to shoot up."

"Certain varieties (of plants) that are very high in demand have gone up 10 percent," adds Tim Korte, vice president of operations, The DiSanto Companies, Inc., Cleveland.

According to Korte, ash, pears and locusts increased the most because of lack of availability. Most shrubs were available, but larger, 36-

