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for just four years.

Ciba's Primo was unveiled at the GCCSA Convention in 1993. Described as a new generation of PGR, end-users discovered that it makes grass grow shorter, denser and stronger.

"We're seeing Primo being used in markets other than golf, markets like sod farms, sports turf, cemeteries and commercial mowing management," says product manager Jose Milan. "Primo has a fairly broad use pattern."

Dursban insecticide is 25 years old and is still going strong, which Phil Howard of DowElanco says is a result of "doing a lot of things right over a long period of time.

"You can't get into this industry overnight with just a lot of flash," says Howard. "There are a lot of other things the industry demands, one of which is quality products. They know what to expect with Dursban. We are continually asking customers how we are doing, and what customers would like to see us do to improve quality."

Turfseed

Favorite turfgrass cultivars were Baron (Kentucky bluegrass), Manhattan and Palmer (perennial ryegrasses) and Rebel (tall fescue). Dipel topped the list of favorite biological control products.

"Baron was the first improved Kentucky bluegrass to be available," says Tom Peters.

"Barenbrug of Holland had

an excellent research program, and brought it to the U.S. [20 years ago]. It's an excellent seed producer, with a good yield and good return per acre, which are all reasons why growers like it so much," says Peters.

Readers selected Lofts' Rebel tall fescue and Palmer perennial ryegrass. Dr. Rich Hurley of Loft Seeds says breeding work on both cultivars began in the 1960s by Dr. C. Reed Funk at Rutgers University. The first variety of Rebel came out in 1979, fol-

lowed in 1985 by Rebel II and then Rebel, Jr.

"In the future, we're going to have a Rebel XL and we're going to have a Rebel 2000. They will probably be coming out in two years," says Hurley, who points out that much of the germplasm of turf-type tall fescues can be traced back to Rebel material. Palmer ryegrass made its commercial debut in 1982-83, he says.

Manhattan is also an old-timer, according to Steve Tubbs of Turf Merchants.

"Manhattan is one of the original perennial ryegrasses," notes Tubbs. "Reed Funk found it in Central Park in New York, and it's been a high-quality program since 1969. Anybody who's ever gone to a turf school has heard of Manhattan, so you're talking 25 years of brand awareness. And today the name is more important than the product because it's hard to get a bad perennial rye."

Turf-Seed co-markets Manhattan, and has for years.

Superintendent wins \$500 prize



Chalifour: Industry is competitive

Bob Chalifour, superintendent at Shennecossett Golf Course, Groton, Conn., took the first prize of \$500 in LANDSCAPE MANAGEMENT's Emerald Awards sweepstakes.

A superintendent for 26 years, Chalifour and his crew try out equipment thoroughly before a purchase is made.

"We discuss the pros and cons of each brand," explains Chalifour, who cuts to the chase when considering a product, and looks immediately for product benefits.

"We look at the equipment from an operator's standpoint: What can the machine do?" says Chalifour.

Ease of service is also on Chalifour's list of important product benefits.

Chalifour says he used to be a very brand-loyal buyer, however, over the years, the equipment industry has become "very competitive," as more companies have appeared on the scene.

"Years ago, we had mostly one brand," recalls Chalifour. "The [competing] companies didn't have the service or equipment to do the job. Now, we have several 'colors' here at Shennecossett."

Chalifour says he relies on university data when he needs

to make a control product purchase. "I'm 45 minutes from the University of Rhode Island. They do extensive testing there."

In fact, Shennecossett is used as a test site by Rhode Island researchers.

The \$300 second prize goes to Pete Yerkich, superintendent at Highland View Golf Course, Butte, Mt.

Yerkich also values equipment trials, as well as a thorough look at product literature.

"I read up on it, learn the options they have, then judge the performance," says Yerkich.

If it's a greensmower Yerkich is evaluating, it is used on all 18 Highland View greens, not just one or two. He also wants his employees to give equipment a whirl.

Yerkich oversees one full time worker, two seasonal, and three summer helpers.



"We've been involved since the beginning," notes Turf-Seed's Tom Stanley, "when Bill Rose and Dick Bailey went back to Rutgers and got the original germplasm and started the Manhattan Ryegrass Growers Association. It was the first fine-leaved perennial ryegrass, a big improvement over Linn.

"We've always had the best germplasm available to work with. Woodburn High School near here has a football field planted to the original Manhat-

tan ryegrass, and it is still the best-looking football field in the area."

The contest/sweepstakes entry form was published in the magazine for four straight months. Most overwhelming responses came from fans of

Echo line trimmers and leaf blowers (30 and 35 percent, respectively), Stihl chain saws (48 percent), Ryan aerators (46 percent) and Ford pick-ups (43 percent). **LM**

—Additional reporting by
Terry McIver and Ron Hall.

The course is owned by the city.

Just as Yerkich demands the best performance from his equipment, so too he appreciates dedicated employees who are truly interested in the job.

"Workers have to put their heart and soul into the job," Yerkich believes. "If you don't have the love for the work, you won't do well."

Cindy Molter, our third prize winner of \$200, operates Circle M Lawn/Landscape of Benton Harbor, Mich.

A former landscape manager at a golf course, Molter relies on dealer support for parts and product information. She calls herself a brand-loyal buyer in certain product categories, especially mowers.

She uses Toro mowers, Medalist turfseed and a "a lot of Scotts" products. □

—Terry McIver

1996 EMERALD AWARD-WINNERS

Top scorers (only) in each category,
listed as percentage of total votes

WALK-BEHIND MOWERS

Toro	22
Scag	11
John Deere	9
Jacobsen	8
Ransomes	7

RIDING MOWERS

Toro	24
John Deere	11
Jacobsen	9
Ransomes	6
Scag	5

LINE TRIMMERS

Echo	30
Stihl	19
Shindaiwa	11
Toro	6
Red Max	5

LEAF BLOWERS

Echo	35
Shindaiwa	7
Toro	4
Green Machine	3
Lesco	3

CHAIN SAWS

Stihl	48
Echo	12
Husqvarna	9
Poulan	6
McCullough	5

AERATORS

Ryan	46
Toro	10
Lesco	4
Ransomes	3
Cushman	2
Jacobsen	2

PICK-UP TRUCKS

Ford	43
Chevrolet	32
Dodge	10
GMC	9
Toyota	3

COMPACT TRACTORS

Kubota	24
John Deere	23
Ford	15
Case	2
Massey-Ferguson	1

FERTILIZERS

Scotts	31
Lesco	17
Lebanon	7
Par-Ex	3
Andersons	2
Milorganite	2

PRE-EMERGENCE HERB.

Barricade	10
Surflan	9
Pre-M	7
Team	6
Pendimethalin	5
Scotts	5

POST-EMERGENCE HERB

Roundup	24
Trimec	22
Lesco 3-way	8
Confront	4
Acclaim	4

INSECTICIDES

Dursban	27
Merit	13
Diazinon	6
Dylox	6
Orthene	4

FUNGICIDES

Daconil 2787	19
Chipco 26019	7
Bayleton	5
Scotts	4
Fore	3
Banner	3
Touché	3

PLANT GROWTH REGS.

Primo	17
Embark	9
Atrimmec	6
Scotts TGR	3
Cutless	1
Limit	1

BLUEGRASSES

Baron	4
Glade	2
Midnight	2
Park	2

RYEGRASSES

Manhattan (&II)	5
Palmer (& II)	5
Lesco Eagle	3

TALL FESCUES

Rebel*	8
Jaguar	3
Bonanza	2
Bonsai	2
Falcon	2
*Rebel includes original Rebel, Rebel Jr., Rebel 3-D, Rebel II	

BIO CONTROLS

Dipel	4
Bacillus thuringiensis	3
Lesco Vector	2
nematodes	2
ladybugs	2

ANATOMY OF A

Great Mulcher



► Mulching mower attachments can be used when a new mower is not in your immediate plans.

by BILL KNOOP,
Ph.D. / Technical Editor

M

It takes the right combination of deck volume, blade speed and engine horsepower to make a good mulching mower.

Mowing is so routine—82 percent of this magazine's readers do it—that it is sometimes taken for granted. But without a good mowing program, the money you spend on fertilizer, water and other cultural practices may be completely wasted.

Every turfgrass has its own best mowing height. They are not hard, fast measurements, but do apply under what we call "normal conditions." Under con-

ditions such as high heat, raising the mowing height of cool-season turfgrasses to the upper mowing range helps prevent heat stress.

Environmental factors may cause mowing heights to be adjusted, but so does the intended use of the turf. The turf used for athletic fields and golf courses should be cut just as low as the plant will stand.

We've all heard the 1/3rd rule: don't cut off more than 1/3rd of the leaf system each time you mow.

It's been proven time and time again.

In a very real way, turf quality can be affected by mowing frequency. Overall quality will suffer if the turf is allowed to grow too high between mowings. To a point, the more frequently a turf is mowed, the better quality it is. This assumes that it is receiving optimal amounts of fertilizer and water and that the climate is favorable. Frequent mowing may also allow you to maintain a turf at what otherwise might be considered an abnormally low mowing height.

The real practical mowing issue has always been, "How can a quality turf be produced in the fastest possible mowing time?" The faster it can be mowed, the more that can be mowed, and the better the profits. Of course, the customer must be happy with the results, and this means turf quality.

How fast a mower moves in its forward gear is not the only way speed is created. For the past several years, we've been faced with a very important environmental issue that has affected us: the demise of the landfill. Bagging grass slows down any mowing operation and increases labor costs. The best way to take care of the grass clipping issue is to leave

cont. on page 26



GOOD BREEDING ENDURES. CUTTER.

The mandate: to develop a "cutting edge" variety of perennial ryegrass exceeding the quality and environmental demands of the most rigorous turfgrass professionals.

After years of intensive breeding and rigorous testing, Pickseed's Research and Development Team fulfilled the promise, to a tee.

THE WINNER: CUTTER PERENNIAL RYEGRASS

In the 1993 NTEP trials, *Cutter* ranked number 1 out of 123 entries in mean turfgrass quality and is proving to be one of the best perennial ryegrass varieties ever developed.

Highly recommended for use on athletic fields, playgrounds, golf courses, home lawns — any area where a fast-starting, attractive turf is desired — *Cutter* is very compatible with other cool season turfgrasses.

In fact, *Cutter* — along with Express and Edge — will lead its enduring pedigree to a new generation of perennial ryegrass blends this fall, with the introduction of Futura 3000.

For all fine turf situations, turn to *Cutter* — living, breathing proof that good breeding endures.



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them on the turf; don't pick them up at all.

And the best way to leave clippings on the turf is to use a mulching mower, which cuts the clippings into very small pieces. The smaller clippings decompose much faster and tend to disappear down into the turf right behind the mower. This means no stopping to empty bags and no bags to carry off for disposal. Remember, these clippings have nutrient value and in a real sense you are giving your customer a free fertilizer application each time you mulch-mow.

Years ago, true mulching mowers were hard to find, but now every mower company has them. Some, of course, are better than others.

It takes the right combination of deck volume, blade speed and horsepower to make a good mulcher.

1) The mulching chamber must be of such volume that the freshly-cut grass clip-

pings don't go directly down into the turf, but enter a circulation pattern that allows them to be cut and re-cut several times.

Most mowing decks are not thick enough (the distance between the blade and the top of the deck mowing chamber), which is very crucial. Five inches seems to be ideal. If the distance is any less, there may not be enough volume in the mower deck to allow proper circulation of the clippings.

2) Maximum blade tip speed should be between 18,000 and 19,000 feet per second under load, measured at the blade tip. A slower tip may mean that the grass clippings don't get re-cut small enough before they fall to the turf.

3) The size of the mower must be adequate. Most commercial mowers run between 14 and 22 horsepower engines. The drive system should be designed so that the maximum amount of horsepower is available for the cutting unit. Some of the bet-

ter machines may have up to a 75 percent transfer of power from the engine to the cutting unit. This means that they can use less energy to achieve the same results as a higher-powered, less fuel-efficient mower.

A good mower should have one more very desirable characteristic: the ability to follow the contour of the landscape independently of the power unit. Very few turf areas are perfectly flat. Ideally, the deck should float in all possible directions. More than likely, that same turf area contains trees, shrubs, flower gardens and other obstacles. This means that the more maneuverable the mower, the faster it can get the job done.

Mowers are not all alike. There are big differences under their skin. Take the time to learn the features. Ask questions. Remember, the mowing program can make or break the quality of any turf, and the choice of a mower can make you more—(or less!)—money. **LM**

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Step 2: Select Oregon's finest grass seed growers to raise high standard, certified seed. Most have produced *Manhattan* for more than 25 years!

Step 3: Market only high quality, competitively priced seed consistently on a long-term basis. An adequate *Manhattan* supply has been available in good and poor crop years.

Step 4: Select dependable, knowledgeable distributors to get your product to the marketplace. Some helped introduce the original *Manhattan* in 1970.

Step 5: Specify Oregon certified *Manhattan 3* for all ryegrass applications! Look for this familiar skyline on the bag you buy:

Manhattan 3 characteristics:

- An elite turfgrass cultivar
- High endophyte level
- Dark green color
- Improved density
- Improved mowing quality
- Improved rust resistance
- Better summer color
- Lower growth habit

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SEED UPDATE:

Roundup resistance, more endophytes, advances in *Poa* (bluegrass) species

by JERRY ROCHE / Editor-in-Chief

"The professional turf manager's job is on the line 365 days a year," claims Jim Carnes, a pioneer in the commercial turfgrass growing and marketing business. "This person needs to rely on the seed to perform to his expectations. Cheap seed will not get the job done." Carnes, addressing a group of turf man-

Northwest, where most of the world's proprietary turfgrasses are grown:

1) Kentucky bluegrass that can be mowed down to ½ inch.

"Jacklin research has made some tremendous strides in Kentucky bluegrass breeding," notes Dr. Doug Brede of Jacklin Seed. "Besides being leaf spot-, disease- and stress-resistant, we're looking at the low-cut fairway tolerance and adaptation of 7500 experimentals.

"Our new Kentucky bluegrasses have been mowed down to ½ inch and they've performed extremely well. This is a totally new phenomenon for bluegrass. They are in seed production now, and should be in full production by 1997."

2) Grasses that are "Roundup" resistant.

Pure Seed Testing is working on perennial ryes, fescues and creeping bents that are resistant to lower rates of Roundup.

"If a turf professional had a variety from these selections, he or she could use the Roundup to control *Poa annua* without discoloration to the turf," Crystal Rose-Fricker says. "The thing is that it's a half-pint rate, and it's only the resistant lines. The resistant lines keep their color, and they may be stunted, but it'd look acceptable enough. You could apply the Roundup three or four times a year and it'd be pretty safe."

Fine fescues—specifically hard fescues—are more tolerant of the Roundup, but ryegrasses and bentgrasses are very susceptible. Some tall fescues, however, show some promise "but we're at least three years from going commercial," Rose-Fricker notes.



Dr. Jim Beard (left) discusses the merits of Netlon as an additive to athletic turf soils, while Turf-Seed Field Day attendees observe a traffic/wear tester in motion.

agers, distributors and growers at a Turf Merchants event two months ago, went on to say that the seed grower, like the turf manager, is "under the gun."

But perhaps the people under the most pressure to produce are the breeders. They are embroiled in a hopeless, never-ending battle to find the perfect grass. And, given weather-related problems over the past 10 months, turfseed this year will certainly not be cheap.

Here are some significant ongoing projects, based on a June trip to the Pacific



Dr. Doug Brede of Jacklin Seed Company explains the company's aggressive Kentucky bluegrass breeding program.

3) Kentucky bluegrass and creeping bentgrass with enhanced insect resistance due to the presence of endophytes.

Jacklin, under the guidance of researcher Suichang Sun, is trying to breed Kentucky bluegrass and bentgrass with endophytes, which enhance insect resistance.

Seven species of bluegrass are being

Kevin Morris tells Advanta Seeds West Field Day attendees that the National Turfgrass Evaluation Program has apparently been saved from budget cuts by the U.S. Department of Agriculture.



used as endophyte hosts. "We believe these hosts are genetically closer to Kentucky bluegrass than [endophyte-enhanced] bluegrass plants previously obtained," says Sun.

In addition, nine bentgrass plant lines have been infected with endophyte. "Even though less than one percent of the seedlings were successfully inoculated," Sun continues, "we have obtained enough plants to form a breeding population."

Not that there aren't problems, or that more research isn't needed.

"The people who are experimenting with endophytes," notes Steve Tubbs of Turf Merchants, "haven't been able to keep them in the grass."

While Jacklin is using injection, Pure Seed Testing is importing samples of possible endophyte-enhanced bluegrass from France, Australia and Czechoslovakia. And The Scotts Co. is using a unique new "gene gun" to zap endophyte into grasses (see "Hot Topics").

4) New uses for colonial bentgrass, *Poa trivialis*, *Poa supina* and Texas bluegrass.

"A lot of people in the Palm Beach, Fla., area are overseeding their greens with 60 percent colonial bent and 40 percent *Poa trivialis*," notes Craig Edminster of International Seeds. "Creeping bent really needs a little heat to get going, and then come spring when you want to transition out of your cool-season grass, the creepers are tough and won't transition out. So you

QUOTES FROM THE COAST:

from Dr. Bruce Clarke, Rutgers University:

▶ "Manganese seems to reduce the susceptibility of bentgrass to take-all patch, and the triazole fungicides—plus a new experimental fungicide called Heritage—will revolutionize take-all patch control."

from Mike Robinson, Seed Research of Oregon:

▶ "We are doing a lot of work with the fine fescues, including blue fescues that are stress-tolerant and low maintenance. Dr. Leah Brillman is also looking for a good slender creeping red fescue."

from Dr. Melodee Fraser, Turf-Seed:

▶ "Tar Heel tall fescue is now in production and will be on the market this fall. It has good heat and drought tolerance, and is brown patch-resistant. It's also dark green and, because it has endophytes, is insect-resistant."

from Dr. Doug Brede, Jacklin Seed:

▶ "The advantage of the new tall fescues is that they blend very well with Kentucky bluegrass, even five years after planting. The best mixture, by seed weight, is 75% tall fescue, 25% bluegrass."

from Dr. Jerry Pepin, Pickseed West:

▶ "We'd like to develop tall fescues that do a better job further south, and have brown patch and pythium resistance. We're really having problems getting good tall fescue for use in areas like Atlanta and Dallas, so we're doing a lot of screening in those areas."

from Craig Edminster, International Seeds:

▶ "We've got two new experimentals in the NTEP that we're going to try to compete with Bardot colonial bentgrass. Better quality and much better seed production; Bardot's never been a very good seed producer."

take colonial bentgrass and mix it with Sabre (*Poa trivialis*) and have an elite-looking turf with early growth.

"The real key this year is that perennial ryegrass may be short, and if such is the case, or if prices are way up, one way to spread costs is to use poa triv as a component of the overseeding mixture."

With weather extremes the norm rather than the exception, research in

southern climates is focusing on heat tolerant, low-water use plants.

"We don't have normal weather conditions any more," observes Dr. Ronnie Duncan of the University of Georgia, speaking at an Advanta Seeds West event. "We're too hot, too cold, too wet, too dry. So you sometimes have to use grass species that are better buffers to the extremes. And Texas A&M, at its Dallas experimental sta-

tion, is working on a hybrid Texas bluegrass and Kentucky bluegrasses that are extremely heat tolerant."

According to David Lundell of Finelawn Research, Dr. John Stier at Michigan State University has found that *Poa supina* has some applications in the sports turf category.

"It looks like *Poa supina* can be used in high-wear areas, shaded areas, golf course roughs, athletic fields and high-use home lawns," Lundell observes.

Availability, pricing

The turfseed industry was visited by a quartet of plagues in 1995-96.

"The biggest losses are to chemical damage, but we had the flood, we had the slugs, we had the cool weather," says Dr. Jerry Pepin of Pickseed West.

"Yet the crop looks real good. Tall fescue and ryegrass acres are reduced, but the yields should be good."

Tom Stanley of Turf-Seed says there's been a 10 percent reduction in perennial ryegrass acreage and a 30 percent reduction in fine fescue acreage over the past two years, "and that means stronger prices." There's also "not enough tall fescue seed to meet demand, and it's going to be difficult to increase the acreage because of the high price of wheat."

Adds Edminster: "The seed crop is looking good, but it'll come up short. The spring moisture will delay the bentgrass crop, but there will be [outstanding] yields. Tall fescue is short and won't be inexpensive this year."

Kentucky bluegrass acreage is about the same as last year, so Stanley "doesn't foresee any shortages."

"Fine fescue acres dramatically reduced over the past three years due to cheap Canadian creeper," reports Turf Merchants International.

TMI also reports that its Kentucky bluegrass crop is at its "best in 10 years." However, reports TMI—as of mid-July—an "extremely short" crop of Kentucky 31 turf-type tall fescue has driven turf fescues to "a sold-out or very high-priced position in the market." **LM**

Changing the Course.

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