

DYLOX insecticide controls all species of white grubs in as little as 24 to 48 hours. It doesn't waste time. Then it doesn't hang around.

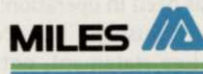
In these times, that's reason enough to use DYLOX. But there's more. It has no label restrictions on turf grass species or sites. So, you can spray your tees, greens and fairways for grubs, as well as cutworms and sod webworms. And with the DYLOX 80% formulation, you can also treat your flowers, shrubs and trees for armyworms, bagworms and stink bugs.



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For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

The time is right for DYLOX.



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Circle No. 118 on Reader Inquiry Card

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Teamwork emphasized in Northbrook Parks District:

by Mike McBride
Northbrook Park District

■ For every baseball/softball program, everyone must understand that he or she is on the same team: coaches, users, maintenance crews. We have 23 baseball/softball fields, serving players from T-ball through adult mixed leagues.

Pre-spring preparation takes place in the fall; all edgings are done, ball mix is worked in, and infields are re-sodded. In spring, only some edging and infield tuning are needed.

Skinned infields are a mix of 80 percent clay and 20 percent sand. They are crowned for drainage. Turf areas are perennial ryegrass mixes.

All of the Little League fields are grassed, with maintained basepaths, mounds and pitcher's boxes. Softball fields are entirely skinned.

Fields are dragged and lined every day, even for practices. The main field, located downtown, has moveable bases that are set for each game. All other fields use Hollywood bases, set by coaches.

Fields are aerated as play schedules allow. All fields are maintained to regulation, with pro-type basepaths, mounds and

batters' boxes.

The main field is used for Little League, softball and baseball. It has three pitcher's mounds in an hourglass-shaped skinned area, with sufficient room to be "legal" for all three levels. Even after the pitcher releases the ball, his foot never touches the grass.

None of the fields are irrigated; hand watering is used as needed. This year, a stabilizer will be tried for dust control.

A six-person crew handles ballfield maintenance. Crews work Monday through Saturday. After 11 years of working toward it, there are no Sunday games this year. Each crew member works 10-hour shifts, four days a week. Wednesday and Thursday are the "double-crew" days.

—Mike Trigg is parks supervisor for the Waukegan Park District. He is president of the Sports Turf Managers Association's Midwest chapter. Mike Moorman is maintenance supervisor for the Glenview Park District. Mike McBride is athletic field/signs supervisor for the Northbrook Park District. All three are STMA national and Midwest chapter members.



Al Liebert cuts sod during field renovation along the arc edge.

Advice from Uncle Sam:

How to apply for a small business loan

■ There are seven steps you must take if you are applying for a small business loan, according to the Small Business Administration.

Here they are:

1) Prepare a written business plan for your business. Describe your experience, and management capabilities of owners and/or managers in writing; personal resumés are acceptable.

2) Prepare the following financial information:

- financial statements for the past three fiscal years, or period of time the business has been in operation;

- current business balance sheet and profit-and-loss statement, not more than 90 days old at time of submission;

- aging of accounts receivable and accounts payable;

- copies of corresponding income tax

returns for prior three years, or time business has been in operation.

(All financial statements should include the balance sheet and profit-and-loss statement.)

3) Prepare a detailed projection of earnings and expenses for a one-year period if the business has not been in operation at least two years. Include a narrative explanation of your basis for the projections.

4) Prepare an estimate of the total amount that you need, and break it down to show amounts estimated for land, buildings, leasehold improvements, equipment, inventory, operating expenses, etc.

5) Prepare a list of collateral to be offered as security for the loan, with your estimate of their individual present values. Include an itemized list of currently-owned equipment and/or equipment to

be acquired with the loan proceeds (serial number, model and cost value).

6) Prepare a current personal financial statement for each owner or partner or stock-holder owning 20 percent or more of the business. (Do not include business assets and liabilities in these statements.)

7) Take this material when you see your banker. Ask for a bank loan; if refused, ask the bank to make the loan under the SBA's Loan Guaranty Plan or to participate with the SPA in a loan.

If the bank is willing to grant you an SBA guaranty loan, the banker will provide you an application. Return the completed forms to your commercial lender, who will in turn forward them to the SBA with a cover letter. The bank will deal directly with the SBA from this point out.

Honda announces a change at the top.



Honda Engines has expanded its power structure with the addition of two new OHV engines, the 18 and 20 hp V-Twins. Both are designed with the quality and reliability

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TECH CENTER

Knowing lifecycle vital to control white grubs

■ Skunks feasted on the grubs buried in the roots of the turfgrass surrounding the corporate office building in suburban Cleveland.

The damage, mostly in the low, moist areas of the property, reaffirmed the adage: to control a pest, first learn its lifecycle. This is particularly true of white grubs since they're below the soil surface. This also complicates their control.

Typically, beetles that develop into white grubs—Japanese beetle, masked chafers, European chafer—lay their eggs in the soil in June or July. The eggs absorb moisture from the soil otherwise they won't grow and develop. The tiny first instar larvae needs sufficient moisture, too.

In fact, research in recent years suggests it's difficult to over-estimate the importance of soil moisture in the lifecycle of white grubs. That's why poor control usually occurs when chemical controls are applied on drought-stressed turf in mid-summer. The white grubs have moved deeper into the soil, in effect, out of reach of the control.

Tasty summer meal—But by mid-summer 1991, the grubs at this showcase of a 10-acre corporate office site had grown large and juicy enough—and remained close enough to the soil surface—to attract

skunks. The night-feeding skunks devastated about six patches of turfgrass, really ripping up a 10-by-30-yard oval patch of turfgrass in a depression adjoining a 3-acre marsh. This ribbon of turfgrass separates the natural, marshy area from a patio where company employees lunch if the weather is nice. Everyone in the building watched as the turfgrass damage, worsened by dryness, grew.

The skunks also dug up turfgrass in a scattering of smaller areas, although they did no scavenging in the less intensively maintained, non-irrigated turfgrass fringing of the property.

The on-site turfgrass manager removed the dead grass *and* thatch, and treated the grub-infested areas of the property with diazinon. After the application, he watered the product into the soil. He said the treatment was successful. Skunk predation tapered off. He reseeded the devastated areas. After a mild winter and wet spring and early summer, his grounds are green and healthy.

They're back—However, he discovered white grubs began feeding on turfgrass roots earlier this spring than usual. (1991 was one of the warmest years recorded in much of the United States.) Adequate rain-

fall in late spring and early summer is another reason why he began checking the roots of his turfgrass for evidence of white grubs earlier than he normally would.

He, like other turfgrass managers, establishes a threshold to determine if they'll apply an insecticide or not. Healthy turfgrass will sustain a certain population of white grubs before damage becomes visible.

However, if and when a manager determines that a control is needed, he or she must make a decision about control product, the method of application and the timing of application.

For typical weather (when is weather ever typical?), the best time to treat for white grubs is just after small larvae grubs emerge. This could be any time from mid-July through late summer. The tiny grubs are closest to the soil surface then. They're feeding.

As fall approaches, the larvae molt. Falling soil temperatures cause the grubs to burrow deeper into the soil to spend the winter. When the temperature rises again in the spring, they work their way upward again and feed for several weeks, just a couple of inches below the soil surface.

In late spring or early summer, the grubs, in the pupal stage, quit feeding for several weeks. Then mid-June through July they change into adult beetles, emerge and burrow into the soil to lay eggs.

Check with your local extension agent for optimal grub control times.

—Ron Hall

GRUB CONTROL STRATEGIES

Spring April-May

If treatment of overwintered grubs is needed, apply when all grubs are in the first two inches of surface soil. General or spot treat Triumph¹ (2 lbs. ai/A); Oftanol, Sevin-Sevimol or Mocap (5 lbs. ai/A) or Turcam (2-4 lbs. ai/A) may be used. Crusade² (4 lbs. ai/A). Irrigate as soon as possible after application. Green June beetle larvae are difficult to control at this time. Sevimol (2-4 lbs. ai/A) may be effective.

Summer June-August

Existing grubs found in July or August may be treated with Triumph¹, Dylox, Proxol, Turcam, Oftanol, Sevin-Sevimol or Mocap. Apply at label rates. Crusade² (4 lbs. ai/A). If soil and/or thatch is dry, irrigate thoroughly before and as soon as possible after app. Treat green June beetle with Sevin (2-4 lbs. ai/A).

Fall-early winter Sept.-December

Treatment can be made as late as mid-late Sept. as long as grubs stay in first inch of surface soil. Triumph¹, Mocap, Dylox-Proxol at label rates may be effective

1 For use only by commercial lawn pest control personnel, and only on golf course tees, greens and aprons, and on sod farms. See soil restrictions.
2 For use in professional turf areas such as golf courses and commercial sod.

Source: Dr. Harry Niemczyk

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When white grubs get into turf, they can cause extensive and costly damage. That's why you need to control them fast — with TURCAM® or PROXOL® Insecticides.

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IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.

Is your turfgrass sulfur-deficient?

■ Turfgrass response to sulfur is more common today than just a few years ago, according to the Potash & Phosphate Institute (PPI).

The reasons might be traced to more effective clean air programs, less sulfur in high analysis specialty fertilizers or plant protection chemicals, differences in variety of species requirements, and improved technology for measuring nutrient shortages. Whatever the reason, each turf plant still needs a certain amount of sulfur to develop properly.

Here is what a lack of sulfur can do to turfgrass:

● **Off-color turf:** The leaf mid-vein remains dark green while the remainder of the leaf becomes light green. Symptoms first show on new growth, since sulfur is slowly translocated within the plant. With more severe cases, the entire plant turns

light green. Some die-back can develop from the leaf tip.

● **Slow growth:** Sulfur and nitrogen are both essential parts of amino acids, the building blocks of proteins. A sulfur deficiency can result in an inadequate amount of one or more of the sulfur-containing amino acids. Sulfur and potassium also serve the plant in similar ways: both are needed to help activate enzymes essential for driving major plant growth activities.

● **Low plant sulfur content:** Early stages of sulfur deficiency might not be visible to the naked eye or noticeable in plant development. But it can be detected through soil and plant analysis.

● **Poor response to nitrogen:** Sulfur helps plants use nitrogen efficiently. Research shows that growth response to nitrogen by bentgrass improves by nearly

70 percent when sulfur is also provided. Grass color also improves when sulfur is in balance with nitrogen.

● **Weed encroachment:** Turfgrasses become less competitive with weeds when nutrient shortages or imbalances develop.

Sulfur can be provided to turf from several sources. A small amount comes from rainwater, which captures sulfur released into the air from burning coal, oil or other materials. Plants obtain a part of their sulfur needs from the breakdown of soil organic matter.

The remainder must be provided through a balanced fertilization program, the PPI says. A few sources include:

- ✓ potassium sulfate,
- ✓ sulfate of potash-magnesia,
- ✓ ammonium sulfate,
- ✓ ammonium thiosulfate and
- ✓ elemental sulfur.

Colorants, mulch in the landscape

by Gary L. Wade, Ph.D.
University of Georgia

■ The fall months are typically the time when landscape professionals replenish mulch in plantings. This is done primarily:

- to help insulate the roots from winter freezes; and
- to freshen the mulch's appearance.

In the southern states, pine straw is the most widely used mulch. But it dries rapidly, becomes brittle and fades to gray.

Today, however, landscapers are looking at mulch colorants as a possible alternative to re-mulching. A wide variety of earth tones are available, and the landscaper can literally paint the landscape any color he or his client likes.

Becker-Underwood's Mulch Magic comes in light brown for pine straw and cypress mulch and dark brown for pine bark and other darker wood mulches.

Standard Tar's Bark Renewer comes in three colors: honey, California redwood and walnut brown.

Lesco's Nu-Mulch is apparently being formulated for them by Becker Underwood and is either similar or identical to Mulch Magic.

Applicators should use them cautiously; they can cause skin and eye irritation.

In the accompanying table, please note that the costs listed are suggested prices

RE-STRAWING VS. APPLYING COLORANTS TO MULCH

Product name	Avg. dealer price/gal.	Cost per oz.	Rate of application	Coverage/ gal. or bale	Est. Cost/ 1000 sq.ft.	Longevity in months
Mulch Magic	\$65.00	\$0.51	4 oz./gal.	200 sq.ft.	\$10.20	4-6
Bark Renewer	\$95.95	\$0.75	12 oz./gal.	200 sq.ft.	\$45.00	12-24
Nu-Mulch	\$59.00	\$0.46	4 oz./gal.	200 sq.ft.	\$9.20	4-6.
Pine straw	\$2.50	—	—	150 sq. ft. (to 1" depth)	\$16.65	6-12

Source: Dr. Wade

provided by the manufacturers in 1991 and may vary by locale and distributor. If labor costs were also considered, the cost of re-strawing would be proportionally higher than spraying because it is a more labor-intensive task.

The data provided are intended for

information purposes only and do not imply endorsement of any one product, nor are they intended to exclude similar products that may also be available.

—Dr. Wade is extension horticulturist in landscape management for the University of Georgia, Athens, Ga.

Corrections

■ A misnomer appeared in a chart on page 43 of our April issue, according to José Milan of Ciba-Geigy.

In the chart, Dr. Don Short of the University of Florida suggested using "Logic" bait for fire ant control. Milan says "Logic" is labeled specifically for agricultural uses such as pastures and farmlands.

Ciba-Geigy's product for fire ant control of turfgrass areas is "Award" fire ant bait.

■ Our March cool-season weed control article listed incorrect treatment for creeping speedwell. Creeping speedwell (*Veronica filiformis*) is controlled by Dacthal DCPA as a post-emergent. Corn

speedwell (*Veronica arvensis*) or parslan speedwell (*Veronica peregrina*) may be controlled by Turflon D, Dacthal, DCPA or Trimec.

■ In the May disease control article, Rohm and Haas products were not correctly represented, according to Robert F. Gordon, manager of Turf & Ornamental Products.

● Rohm and Haas no longer sells maneb (Dithane) in the U.S.

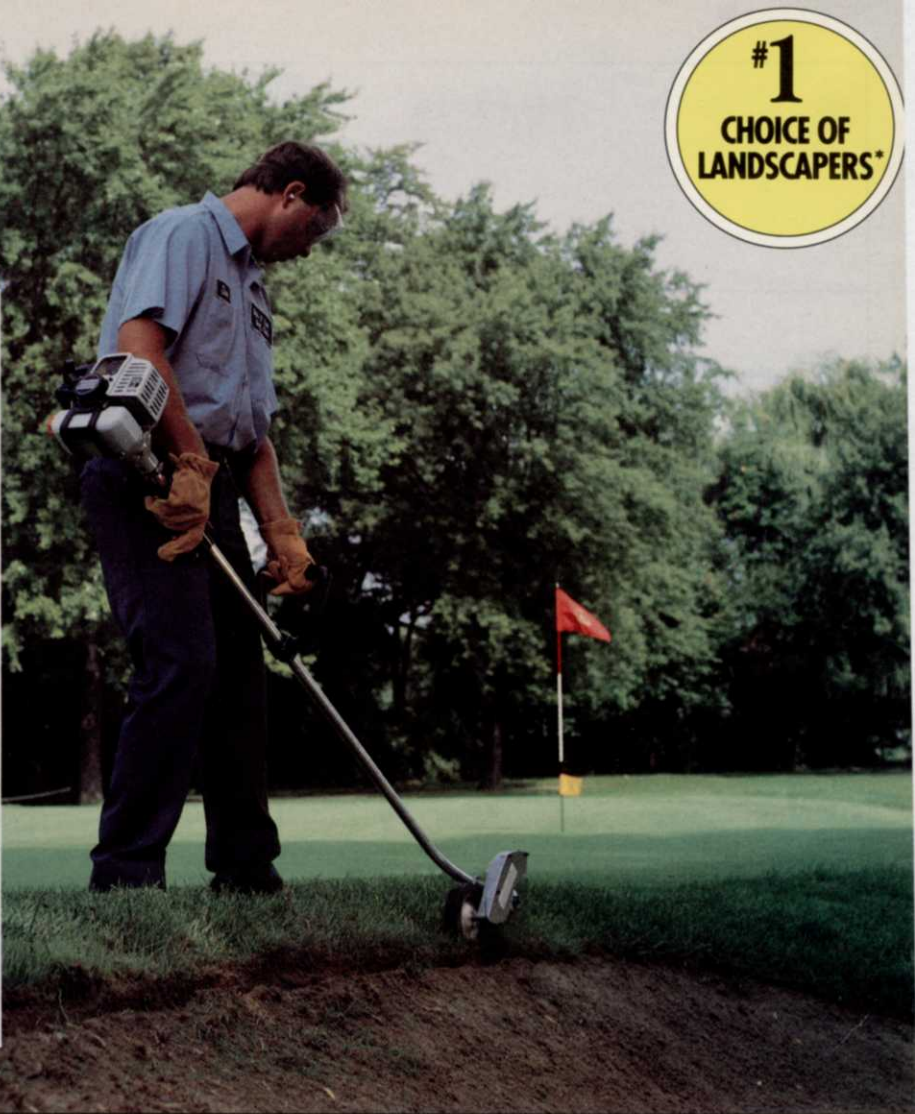
● Dithane and Fore are the trade names for the fungicide mancozeb.

LM regrets any inconvenience these errors may have caused readers.

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Rick Bowden, Senior Assistant
Golf Course Superintendent
Bob-O-Link Golf Club
Highland Park, Illinois



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STRICTLY GOLF

Don't gamble on sand selection

Insist on sand that has been subjected to particle size analysis, says this author.

by Stephen McWilliams

■ When superintendents select general construction-type sand for greens construction or maintenance, they increase the potential for chronic turf problems.

Selecting sand for sand-based systems must be based on a proper chemically- and mechanically-dispersed particle size analysis. This process strips silt and clay from the individual sand grains to show a true particle size distribution. By not separating the silt and clay from the sand fractions, a basic drop sieve analysis (common in the construction industry) can misrepresent multiple sand grains as one particle.

Because the goal of a sand-based system is balanced air and water management, the level of fine and very fine fractions is critical in the initial grow-in and long-term operation of USGA-perched water table systems.

A basic turf management rule: don't topdress sand-based systems with sand that is finer than the base rootzone mix. Doing so can lead to restricted air movement due to layering, and as a consequence, root pruning, a loss of surface stability, and rapidly deteriorating turf quality.

When buying sands for a sand-based system, make sure the particle size distribution—the primary basis for your decision to purchase the materials—is determined by a chemically and mechanically dispersed particle size analysis. It is also prudent to sample and test the delivered sand. Mistakes do happen.

—The author is president and CEO of Turf Diagnostics & Design, Inc., Olathe, Kansas.

Comparison of full mechanical particle size analysis and dry sieve analysis						
Case 1				Case 2		
Dry sieve	%Δ	Full mechanical		Dry sieve	%Δ	Full mechanical
1.6	-0.9	0.7	Total gravel %	0.0	0.0	0.0
12.7	-3.9	8.8	Very coarse %	7.5	-5.7	1.8
31.0	-6.4	24.6	Coarse %	44.9	-17	27.9
30.8	-1.5	29.3	Medium %	31.4	+9.8	41.2
15.9	+7.5	23.4	Fine %	17.9	+6.6	24.5
2.9	+2.8	5.7	Very fine %	0.1	+0.3	0.4

Textural analysis				
Case 1			Case 2	
Dry Sieve	Full mechanical		Full mechanical	Dry sieve
N/A	91.8	Sand %	98.4	N/A
N/A	0.3	Silt %	0.4	N/A
N/A	7.3	Clay %	2.1	N/A

The importance of full mechanical analysis

■ For any important turf application, these tables show that the quality of the sand has been misrepresented by an unacceptable testing method.

Case 1 and Case 2 show a considerable shift (%Δ) in sand distribution from the "Total Gravel," "Very Coarse" and "Coarse" fractions to the "Medium," "Fine" and "Very Fine" fractions. This indicates a potential risk of relying on a dry sieve analysis when buying sand for use in high-performance sand-based systems.

To meet 1993 USGA standards, all sand testing must be a full mechanical particle size analysis. All sand distribution testing for turf applications should be tested in this manner.

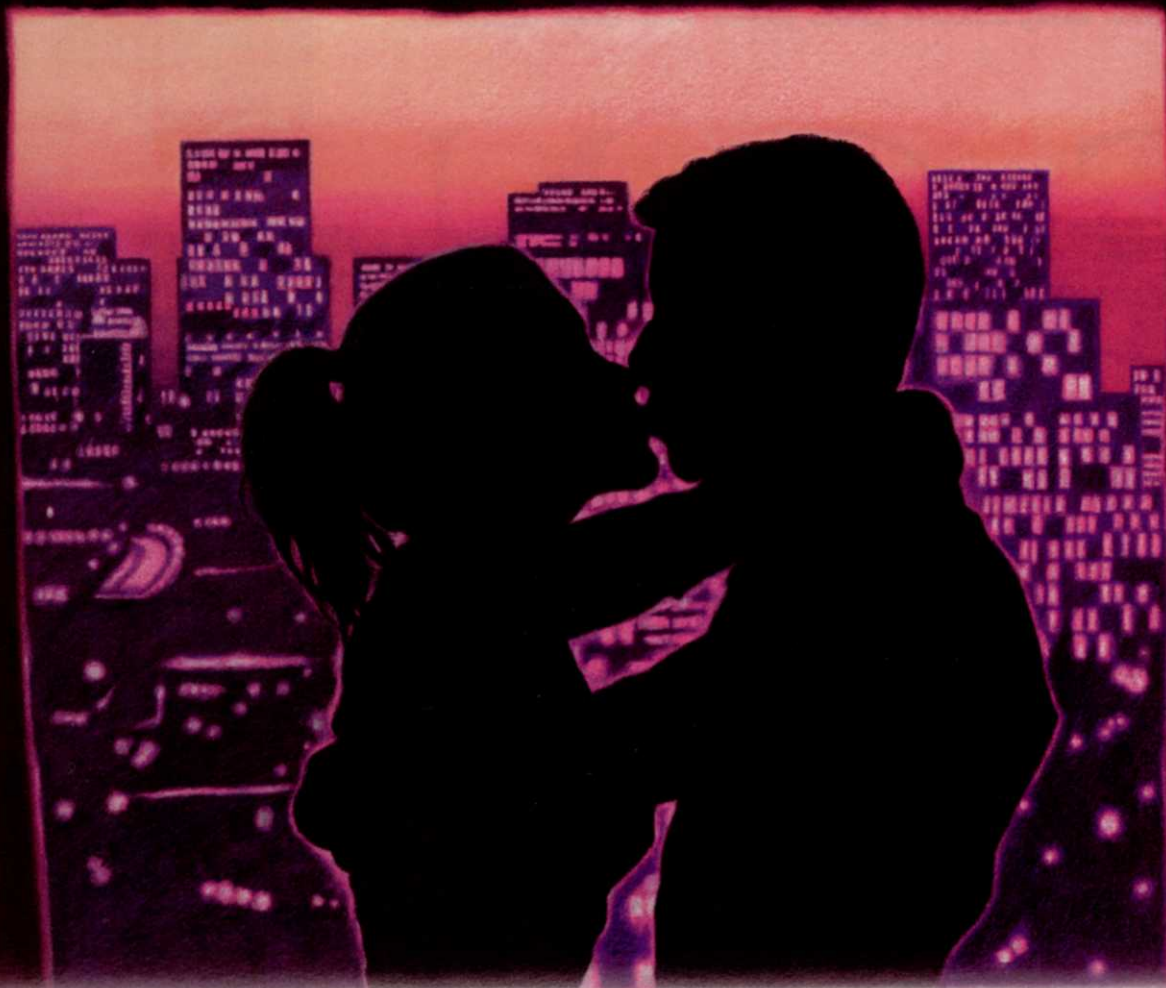
In a full mechanical analysis, if there is any silt and clay, the particle size distribution for the sand cannot total 100 percent as sometimes seen in the dry sieve method. If a sand particle size analysis is presented and the distribution totals 100 percent, further investigation is called for.

—S.M.

ELSEWHERE

More disease, super asks, p.34

Airplanes and the Audubon, p. 34



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