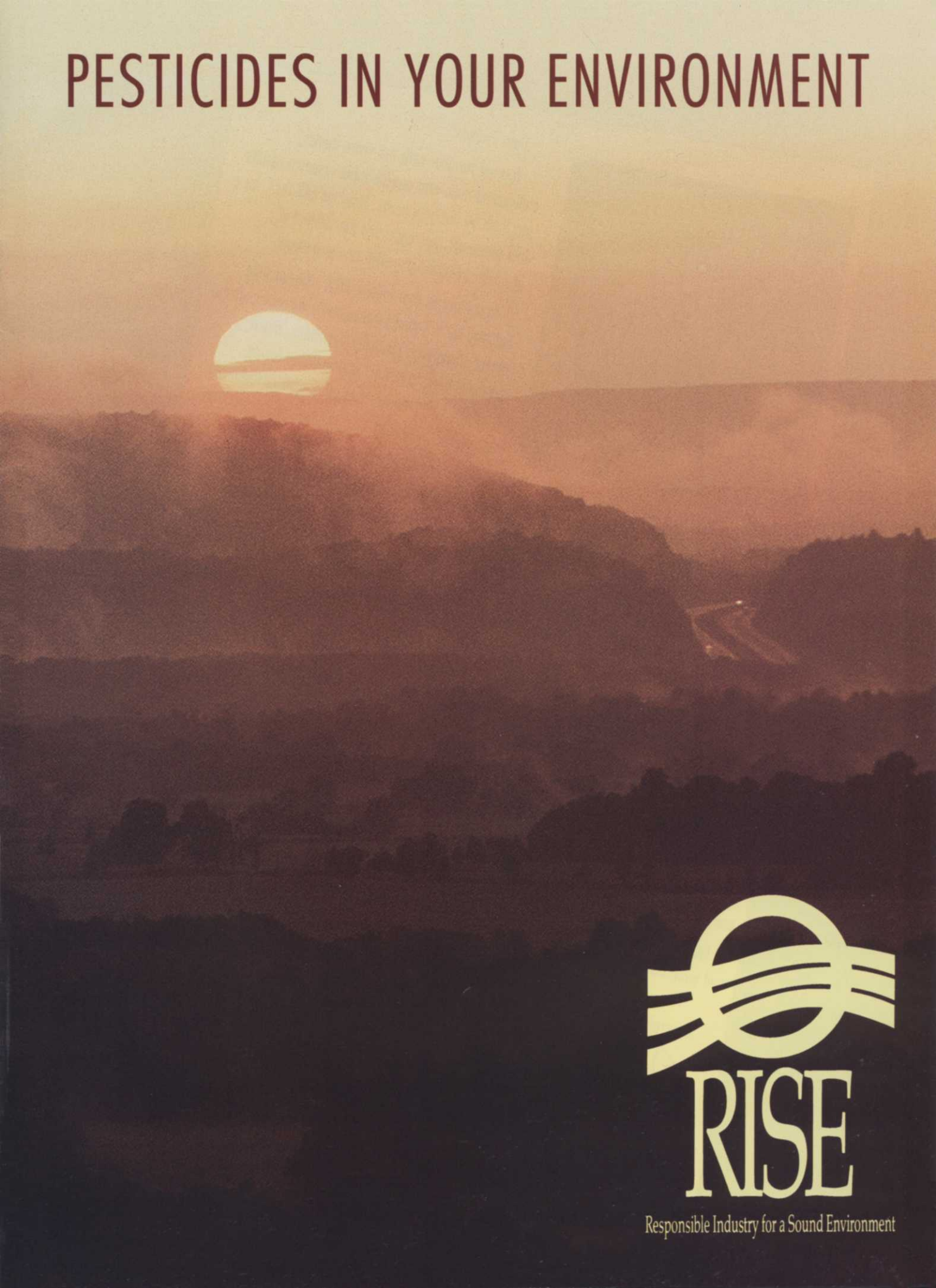
PESTICIDES IN YOUR ENVIRONMENT



RISE

Responsible Industry for a Sound Environment

Dear Friends:

You are familiar with the scare tactics, Hollywood hype and questionable research results put forth by our opponents. Now we ask that, for a few moments, you approach the subject of specialty pesticide use with an open mind.

In the pages that follow, RISE (Responsible Industry for a Sound Environment) wants to set the record straight on specialty pesticides, those products used to protect and enhance lawns, gardens, trees, homes and other non-agricultural areas, like roadsides.

This project represents an industry first — editors of usually competitive publications worked in cooperation to present the facts. Their mission is straightforward: Define the benefits of specialty pesticides and put the risks in proper perspective.

Homeowners and professional applicators can use specialty pesticides with confidence. The specialty pesticide industry tests and re-tests all products to ensure they pose no unreasonable effects for humans, animals or the environment when used properly.

As a result of the strict testing standards imposed by manufacturers, the Environmental Protection Agency and various state regulatory agencies, only one in approximately 20,000 products makes it from the chemist's laboratory to the marketplace.

But even these impressive numbers don't let us rest on our laurels. Our industry continually works to discover and develop new products to protect human health, improve the environment and, in general, better our quality of life.

The specialty pesticide industry is dedicated to bringing you the safest and most effective products possible. Our goal is simple: Control undesirable pests and diseases in your neighborhood and our nation.

We want you to take heart in knowing the world is a safer, healthier, prettier place in which to live and work — thanks to specialty pesticides.

Sincerely,

Allen James

Allen James
Executive Director

THE OTHER SIDE OF THE STORY

SPECIALTY PESTICIDES: SOCIETY'S UNSUNG HEROES

You've read it in the newspapers. You've heard it on TV. The decade of the 1990s is the decade Americans are embracing traditional values. Tired of the race to overachieve, Americans are rediscovering the pleasures their immediate environments provide.

Many Americans don't give a second thought to a kitchen cupboard free from cockroaches, a front lawn minus weeds, a nearby pond teeming with fish. Such benefits — all part of a clean, healthy living environment — are taken for granted. They're as American as mom and apple pie.

Without the use of specialty pesticides, however, the story would be radically different. Disease-infested trees? Shade is scarce. Vegetation-choked waterways? Fish don't flourish. Roach-infested kitchens? Forget the food.

Specialty pesticides rid homes and workplaces of annoying and damaging insects, noxious weeds and plant diseases. They work selectively, like antibiotics work to rid the human body of only the undesirable bacteria and germs.

Properly used, specialty pesticides play a big role in helping this nation maintain one of the highest standards of living in the world. However, the road isn't always smooth. Specialty pesticides are under fire from several sectors, both public and private, but their value to society is proven.

While risks must be considered, the benefits of specialty pesticides can't be denied. Any medicine used properly and according to label instructions can do much good. Used improperly or abused, it becomes a poison. The dose makes the poision. The tests that specialty pesticides undergo during the registration process are similar to those for pharmaceuticals. But, in most cases, specialty pesticides must undergo even more tests to prove they can interact with the environment, as well as humans, without undue risk.

Specialty pesticides help deliver a pest-free living environment for Americans.

Former U.S. Surgeon General C. Everett Koop encourages the public to recognize the difference between real risk and hypothetical risk: "The risk, for example, of being killed by an automobile (1 in 6,000) is much greater than any hypothetical risk of a pesticide. Yet that doesn't keep us off the road, either as passengers or as pedestrians.

"By focusing on a hypothetical risk, like that from pesticides, not only do people find their anxiety levels elevated, but by focusing on a straw man, they also feel that they are doing something to improve their health. In so doing, they often neglect all the other things that they could be doing more readily, more legitimately, and with greater effect, such as paying attention to smoking, alcohol, exercise, balanced diet and so on."

The lesson is simple: Everything has risks, but risks must be weighed against benefits. Americans use potentially toxic products — from cleansers to gasoline — every day. Used properly, they serve their purpose and improve our quality of life. Specialty pesticides do, too.

Thanks for a job well done to the editors and publishers of *Arbor Age, Grounds Maintenance, Landscape & Irrigation, Landscape Management, Lawn & Landscape Maintenance, Pest Control, Pest Control Technology, SportsTURF* and *Tree Care Industry*. Thanks also to the National Roadside Vegetation Management Association and others who contributed information and graphics.

SPARING THE PLANET OF PESTS AND DISEASE

There was a time when pest-borne diseases — malaria, yellow fever and typhus — were feared by every American. There was a time when nearly one-fourth of Europe's population was wiped out by bubonic plague. There was a time when the constant biting of bed bugs prevented a good night's sleep.

Before widespread mosquito control, as recently as 1935, 4,000 Americans a year died of malaria. Further back, during the summer of 1878, a yellow fever epidemic affected 132 U.S. cities and 75,000 Americans. Of those, 16,000 people died of the mosquito-carried disease.

Close inspection inside a structure leads the pest control operator to actual and potential problems. Early identification of a termite infestation can save the homeowner money and headaches. It's estimated termites and carpenter ants cause $2.5 billion in structural damage annually worldwide.

And it was in 1845 that the Honorable John Randolph addressed Congress and declared that Florida would never be developed nor would it ever be a fit place to live. He described Florida, one of today's most popular tourist destinations, as "a land of swamps or quagmires of frogs and alligators and mosquitoes."

Today, we live in a country where plagues and epidemics are a vague memory. "Americans no longer worry about getting malaria, yellow fever or dengue fever," says Norman Cooper of the National Pest Control Association. Once common and greatly feared problems in America, these diseases were transmitted to humans by insects and rodents.

DID YOU KNOW?

Few Americans worry about health threats posed by insects. That's because pest populations are held in check by pest-management programs, which include responsible use of specialty pesticides. A pest-free living environment:

- Wards off disease. Pests, such as mosquitoes, no longer pose the disease threats of the past, when whole cities and nations were wracked by outbreaks of malaria, yellow fever and typhus.
- Allows the public to enjoy outdoor recreation. Some of today's popular tourist destinations, such as Florida and other tropical locales, once were seen as unfit places for humans to live or visit. Pest control cleared the way for development and commercialization of recreational facilities.
- Protects the food supply. Without pest control, rodents and insects would dine on much of the food meant for human consumption.
- Enhances property values. Homes and offices, free from wood-infesting and other pests, enjoy a longer life span and maintain more of their original value.

"Fortunately, we no longer must fear pest-borne diseases — not only because of great advances in modern medicine but because of modern pest control, too," Cooper says.

Even President George Bush recognizes the important role the pest control industry plays in protecting public health and property. In a letter recognizing National Pest Control Month, he wrote: "We Americans have come to expect pest-free homes, places of employment and food supplies. Yet we know that we could not enjoy living in a clean, healthy environment if it were not for the efforts of pest control professionals."

Pest control operators and technicians take time to review problem spots with homeowners and business operators.

PAYOFFS FOR THE PUBLIC

The payoff for this commitment to pest control and public health programs is a dramatic increase in life expectancy. In 1940, the average American lived to age 63. Today, the average American lives to age 75.

Unfortunately, the media has been slow to spread a positive message to the public. "The overwhelming majority of the news we get from radio, television and print media about health and the environment is bad news...despite the fact that national health statistics indicate we have never been healthier," says Dr. Elizabeth Whelan of the American Council on Science and Health, a consumer education and advocacy group.

The control and monitoring of public health pests through integrated pest management (IPM), including the use of specialty chemicals, is a key reason for America's improved health. Pest control professionals keep fleas, ticks, cockroaches, rats and other pests from reproducing in large numbers. But it's a constant battle. Consider these statistics:

- Rats bite more than 45,000 people annually, mostly infants and children.
- Seven to eight percent of the U.S. population is allergic to cockroaches. Studies of inner-city children in Atlanta with chronic wheezing, runny eyes and noses revealed that 44 percent were allergic to cockroaches.
- Rodents are responsible for, or implicated in, the spread of numerous diseases, including plague, acute food poisoning, rat-bite fever and typhus.
- Lyme disease, transmitted to humans by the deer tick, infects thousands of Americans annually — and the numbers are rising.
- Cockroaches transmit a variety of digestive tract disorders, including food poisoning, dysentery and diarrhea.
- Mosquitoes are prime carriers of several types of encephalitis, a devastating illness that attacks the central nervous system of humans.

Precise application of specialty pesticides keeps living environments pest-free.

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ENVIRONMENTAL DAMAGE

Public health isn't all that suffers when pests reproduce in large numbers. Wood-destroying insects, including termites and carpenter ants, cause nearly $2.5 billion in structural damage annually. In the United States alone, termites cause an estimated $800 million worth of damage to more than 600,000 structures.

And termites aren't the only villains. Rodents eat or contaminate millions of dollars of food daily. The National Pest Control Association estimates a single rat in the United States may contaminate up to $1,000 worth of food annually. Worldwide, experts estimate rats and mice destroy enough food each year to feed 200 million people! By damaging electrical wiring, rats are suspected of causing up to 25 percent of all fires of unknown origin.

Americans largely take a pest-free home for granted. Specialty pesticides have eliminated the threat of many diseases that wracked humans in decades past.

Fully one-fifth of all U.S. households have had a pest problem in the past year. Yet, despite the risk of disease and structural damage, many Americans still fear the use of specialty pesticides to control pests. Why? Experts say the general public doesn't understand the relationship between benefits and risks.

Part of the reason for the pesticide phobia, says former U.S. Surgeon General Dr. C. Everett Koop, is "the public doesn't have a very good grasp of the relationship between the dose of a toxic substance and its risk in human beings." Information often comes from those who use scare tactics rather than science when warning the public.

But the truth is hard to deny. Professional pest management programs improve the nation's standard of living. Widespread outbreaks of yellow fever, malaria and similar maladies — plagues that once swept the nation and the globe — have thankfully been committed to the history books.

BUG OFF

SPECIALTY PESTICIDES LESSEN THREATS TO HUMAN HEALTH

While the threat to human health from harmful insects has been greatly reduced, it hasn't disappeared. Insects and other pests pose many common and not-so-common health problems. Each of the following problems can be and is being controlled through efficient and effective pest control methods, including use of specialty pesticides.

Ants	Bite and sting Infest stored food
Bats	Associated with rabies, histoplasmosis and other diseases
Bees	Bite and sting Infest stored food
Beetles	Infest stored food Cause dermatitis
Cockroaches	Cause food poisoning Associated with gastroenteritis, dysentery, allergies and skin infections
Fleas	Cause dermatitis Transmit plague, typhus and tapeworm
Flies	Transmit typhoid, cholera, dysentery, infantile diarrhea, tularemia and other diseases Some species bite
Hornets	Bite and sting Infest stored food
Lice	Cause dermatitis Transmit epidemic typhus, trench fever and relapsing fever
Mites	Can cause dermatitis Transmit rickettsialpox and hemorrhagic fever
Mosquitoes	Transmit malaria, encephalitis, yellow fever and dengue fever
Nuisance birds	Associated with histoplasmosis, ornithosis and other diseases
Rodents	Bite Transmit leptospirosis and lymphotic choriomeningitis
Ticks	Transmit Lyme disease, Rocky Mountain spotted fever and tularemia
Wasps	Bite and sting Infest stored food

Source: National Pest Control Association

TREES

IMPROVING THE VIEW FROM ABOVE

Trees beautify the environment through colorful flowers, showy fruit and rustic winter bark and twigs. Trees also offer practical benefits, such as screening high winds, buffering sound, hiding unsightly views and providing cooling shade.

In fact, tree plantings significantly reduce temperatures in urban areas, which, on average, are 10 degrees warmer than the surrounding countryside. Tree plantings and light-colored surfaces can cut home energy bills by $100 to $200 a year, according to the American Forestry Association.

An admiring but busy public takes trees' value largely for granted. Few probably realize urban areas are losing trees at a record pace. According to the National Arbor Day Foundation, in some U.S. cities, up to four trees die or are removed for every one tree planted.

The full value of trees would not be realized without the benefits of specialty pesticides. Specialty pesticides are to tree health what medicines are to human health. When applied knowledgeably and responsibly, tree-care medicines are invaluable tools that make a positive contribution to our environment and to our health. Healthy trees improve our quality of life.

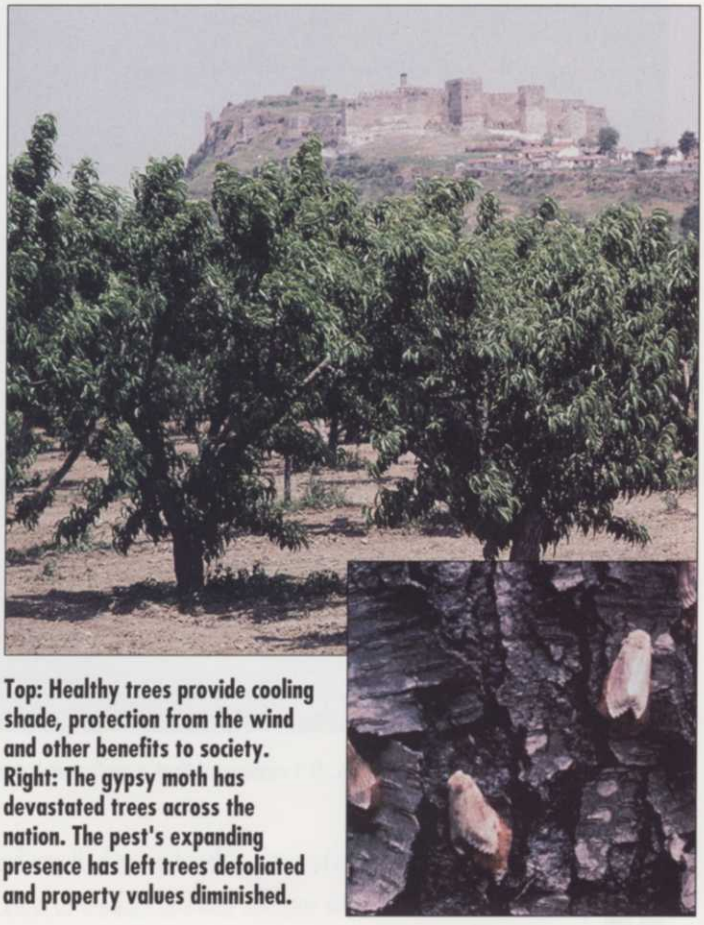
Unfortunately, trees are subject to insect attack. The gypsy moth, for example, has destroyed hundreds of thousands of acres of trees, mainly from the Carolinas up through Michigan. Favored hosts include oak, birch, apple and cottonwood trees.

However, biological and conventional specialty pesticides can control the gypsy moth caterpillar. Community spray programs and tree care firms are working to control the pest — and save trees.

No one wants those trees to go the way of the American elm, which once formed cool, green archways over streets in U.S. cities. Since the 1940s, thousands of the mighty elms have fallen victim to Dutch elm disease. Today, few are left.

A tiny insect, the elm bark beetle, carries the deadly disease from tree to tree. U.S. Forest Service research, however, has found that specialty pesticides, properly applied to the top of the tree, will reduce beetle feeding and limit introduction of the disease.

An integrated approach to control — pruning, specialty pesticide spraying and fertilizing — can save trees. Removing any segment of the three-part control program weakens the cure. The use of pest-specific specialty pesticide products, as part of an integrated approach, contributes to a better environment for today and tomorrow.



Top: Healthy trees provide cooling shade, protection from the wind and other benefits to society. Right: The gypsy moth has devastated trees across the nation. The pest's expanding presence has left trees defoliated and property values diminished.

DID YOU KNOW?

Trees bring beauty and practical benefits to modern society. They provide shade, beautify properties, strip pollutants from the air and much more. Kept healthy by specialty pesticides and mechanical controls, trees:

- Save energy. One large tree has the same cooling effect as 15 room-size air conditioners. Mature trees shading homes cut energy costs by 18 percent to 50 percent.
- Increase property value. Trees can add up to 20 percent to the value of a home. However, without proper maintenance, the value of trees declines. Timely use of specialty pesticides controls disease and insect damage.
- Clean the air. One acre of trees removes 5 tons of carbon dioxide from the air annually. According to the American Forestry Association, one average, mature tree absorbs 26 pounds of carbon dioxide per year. The same tree cleans up pollution created by a car driven 11,300 miles, as well as gives off enough oxygen for a family of four to breathe for a year.

TURF

PUTTING SPRING IN YOUR STEP

Turf does more than just look pretty. It's estimated that a well-maintained landscape can add up to 15 percent to a home's value.

The rain has ended, and you're ready to head to work. If you hurry, you can run the bills to your mailbox and still make it to work on time. You grab the stack of envelopes, dash out the front door — and sink in mud up to your ankles.

That's what life would be like if you didn't have a lawn.

It's easy to overlook the obvious, and turf is obvious. It's everywhere — home lawns, parks, roadsides, building grounds and more. People forget the main purposes of turf are to hold soil in place and offer solid footing. The beauty of turf overpowers its function.

FUNCTIONAL BENEFITS

In addition to stabilizing the soil, lawns offer many other benefits as well. Each makes life more enjoyable.

Turf moderates the climate. It cools city streets and reduces energy costs of cooling homes and businesses. Concrete and other hard building materials often cause urban areas to be 10 degrees warmer than nearby rural areas. According to The Lawn Institute, eight average-sized lawns have the cooling effect of 70 tons of air conditioning; the average home-size air conditioner has just a 3- to 4-ton capacity.

DID YOU KNOW?

The role of turf often is overlooked by the public. Healthy turf provides a number of benefits, and specialty pesticides play a key role in keeping turf in top condition. Well-groomed turf:

- Promotes safety and health. Turf reduces fire hazard, reduces injury to children or athletes and provides a safety buffer for roadsides, airport runways and agricultural fields.
- Improves the environment. Turf tempers the climate around homes, as well as stabilizes the soil and prevents runoff.
- Beautifies and improves the value of property. Turf is critical in landscape design. Its green color accents and frames plantings of ornamentals. Well-maintained landscaping typically adds up to 15 percent to a home's value.
- Provides recreational opportunities. Turf provides the safest, least expensive and most resilient outdoor surface for sports. No other surface of vegetation tolerates as much abuse.

Turf also reduces noise levels by as much as 30 percent, and cuts glare along roadsides, which poses a hazard to drivers and an annoyance to those in homes and offices. Turf's rough surface breaks up incoming sunlight.

As with ornamentals, healthy turf provides a zone of protection that slows the spread of wildfires around buildings. Northern California residents learned this lesson in 1991. Because of their healthy lawns, many homes survived the Oakland fires.

Golf greens wouldn't be "green" if not for natural turf. A diligent weed control, aeration and fertilization program keeps turf healthy, dense and attractive.

In addition to helping save lives, a thick lawn improves quality of life. A healthy lawn averages six turfgrass plants per square inch and 850 plants per square foot. There are 8 million plants in an average 10,000 square foot yard. Each plant converts carbon dioxide from the air into the oxygen we breathe. A turf area 50 feet by 50 feet releases enough oxygen to meet the needs of a family of four. Turfgrass also absorbs smog-produced ozone and sulfur dioxide.

When it intercepts rain, turf prevents hardening of the soil. If turfgrass leaves didn't take the brunt of the downward force, driving rain would wash away soil and leave the top layer hardened. Turf's root system helps the soil breathe and allows water to enter the soil.

Similarly, turf reduces runoff of water and nutrients. In fact, agricultural extension agents recommend grass buffer strips around crop land and feedlots to reduce runoff and keep nutrients from entering waterways.

Because of its ability to remove nutrients from water, turf is used as a living filter to clean up sewage waste. Waste water is applied to turf and soil to be purified before entering ground-water systems.

On another safety front, turf is required along airport runways to prevent dust from flying into aircraft engines. Along highway roadsides, turf serves the same purpose. Turf also serves as a safety strip in case a plane strays from the runway or a car runs off the highway.

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Natural turf is preferred for athletic fields. Turf takes abuse and bounces back, providing sports enthusiasts with solid footing and cushioning.

HUMAN HEALTH AND SAFETY

Family health and safety is a prime concern. Surprisingly, many dangers exist around the home. Despite its appearance as a beautiful, lush carpet of green, a lawn plays a vital role in minimizing dangers. Many Americans seem to have forgotten turf's role in maintaining the health and safety of families and pets.

Turf that is free of weeds and mowed regularly provides a safe haven for allergy sufferers. Pollen from noxious weeds, such as ragweed, greatly bothers hay fever sufferers. The National Institute of Allergy and Infectious Disease reports 35 million Americans suffer from allergies, and 9 million of those have asthma. Although allergic reactions rarely are fatal, asthma causes about 5,000 deaths per year. By stopping seedhead formation with specialty pesticides and regular mowing, the source of pollen problems is eliminated.

Healthy turf also reduces allergic reactions caused by dust and other particles in the air. It's estimated turfgrasses trap much of the 12 million tons of dust and dirt released each year into the atmosphere.

Similarly, weeds such as clover and dandelion attract insects that can be fatal to humans who experience reactions. Various insects, including bees, wasps, hornets, yellow jackets, fire ants and Africanized killer bees, are responsible for about 40 deaths a year. Severe reactions to stings occur in 0.4 percent of those stung. Controlling insects and insect-attracting weeds with specialty pesticides helps prevent unnecessary deaths.

In daily life, turf provides a clean cushion on which children can walk and play. Turf cushions toddlers' falls. Children stay cleaner in grass, too.

Turf provides solid footing and cushion on sports fields. A study by the Sports Research Institute, the National Athletic Injury/Illness Reporting Service and The Pennsylvania State University found that one in five injuries and about 44 percent of ankle, foot and knee injuries are field-related. Fields in better playing condition are safer. The study also found that although practice fields were used much more than game fields, they received less care.

This safety message has not been highly publicized. A timely weed control, aeration and fertilization program promotes dense, healthy turf, which, in turn, promotes field safety.

RECREATIONAL BENEFITS

Where would sports be without turf? No other plant takes such abuse and still provides solid footing and cushioning. While artificial turf is used on some athletic fields, players generally say it's too hot and it leads to injuries. Managers of athletic fields dislike its maintenance headaches and hefty costs compared with natural turf.

Natural turf usually is used on sports fields because:

- It provides the safest, strongest and least expensive surface for sports.
- It is resilient. Turf absorbs shock without altering the playing surface. Turfgrass leaves and shoots, thatch and soil allow the surface to bounce back.
- It recuperates quickly from injury when cared for properly.
- It provides a natural surface for walking, running and sports.

A variety of sports are played on turf: baseball, cricket, croquet, field hockey, football, golf, lacrosse, lawn bowling, polo, rugby, soccer, softball, and tennis.

EYE APPEAL

How can one judge the beauty turf adds to a landscape? One good way is to walk down a street and compare the eye appeal of nicely manicured lawns to lawns that are unkempt, thin and full of weeds. Note the connection between turf quality and your general impression of the property.

The public recognizes turf's value in home sales. A Gallup Survey found 62 percent of all U.S. homeowners believe investing in lawns and landscaping is as good or better an investment as other home improvements. Proper and well-maintained landscaping can add up to 15 percent to a home's value, according to the survey.

From a design standpoint, turf is a critical part of the landscape. It breaks up plantings. Its green color accents and offers a frame for plantings. Turf is an alternative to concrete and asphalt in urban areas.

THE NEED FOR SPECIALTY PESTICIDES

Proper care is the key that unlocks the benefits of turf. A healthy lawn provides all the benefits already discussed, but a poorly maintained lawn falls short.

Keeping a lawn in top shape requires a combination of pest control and cultural practices, such as mowing, aeration, irrigation and fertilization. All aspects affect lawn quality. If improperly fertilized, irrigated or aerated, turf will be stressed and soon will give way to weed, disease and insect problems.

Timely identification of the cause of problems and beginning treatment, such as correcting fertility, pH or compaction, are key. Next, control measures should be combined with cultural practices and a preventive pest control program.

The best guarantee for a successful lawn is use of specialty pesticides when needed. Without proper controls, you'll miss out on the health and safety benefits turf has to offer.

Managers of athletic fields say natural turf is easier and less costly to maintain than artificial turf.

ORNAMENTALS

HEALTHY PLANTS FOR A HEALTHY LIFESTYLE

Landscaping brings a natural calm to the hurried urban sprawl.

For millions of Americans worn from days spent in sterile business centers, our parks, golf courses and recreational areas lend a breath of fresh air. Businesses increasingly recognize the benefits of providing ornamentals — trees, shrubs, plants and flowers — in and around work areas. Attractive landscapes are linked to above-average labor productivity, lower absenteeism and easier recruitment.

In addition, homeowners view money spent on gardening and landscaping as an investment in their property and personal well-being.

To achieve healthy, thriving ornamental plants, a combination of cultural practices and specialty pesticides is key. Proper application of specialty pesticides increases the benefits gained by timely irrigation, weeding and aeration of the soil.

Plants do more than create an attractive landscape. They absorb heat and provide shade, reducing solar radiation and reflection. Plants can reduce or increase wind speed and enhance dew formation, says Richard Harris of the Department of Environmental Horticulture at the University of California-Davis.

Plants also modify wind patterns by blocking, guiding, deflecting and filtering air flow. Shrubs and ornamentals moderate cold temperatures; they also reduce heat loss and build an insulating buffer of air around buildings.

Well-designed and maintained landscapes provide the benefits of a natural environment with limited worry. Fertilizer applications encourage ground cover growth on slopes, while specialty pesticides keep insect and disease problems in check.

Flowers, shrubs and other ornamental plants add beauty to the landscape, prevent erosion, save energy, help prevent fire damage and increase property values.

EROSION AND POLLUTION CONTROL

Plants intercept rain, softening the impact that might otherwise loosen soil particles and wash them away. Mulch, commonly used in bedding areas, allows water to filter into the soil and slows surface movement; water enters the soil close to where it falls. Plant roots hold soil and further reduce erosion.

Indoor and outdoor plants also reduce air pollutants. Plant tissue, primarily leaves, absorbs gaseous pollutants.

"Plants not only absorb carbon dioxide and release oxygen into the atmo-

Plants, flowers and shrubs planted alongside business centers, such as this shopping mall, lend diversity to the landscape.

DID YOU KNOW?

An attractive landscape, complete with shrubs, trees and flowering plants, delivers a number of benefits to property and people alike. Aided by insect- and weed-control measures, healthy ornamentals and plant beds:

- Positively impact the environment. Plants absorb heat and provide shade, as well as modify wind speed and air flow. They filter air pollutants and reduce soil erosion. A well-maintained landscape aids in fire prevention and control.
- Improve people's moods. Studies have found plants positively affect human health by reducing stress and increasing a sense of well-being.
- Increase property values. When selling a home, homeowners can expect to recoup 100 percent to 200 percent of their investment in landscaping. Home buyers pay close attention to landscaping.

Research has found that plants have a positive impact on human health and mood. They serve as stress-reducers and spirit boosters.

sphere, but the plant leaves, roots and soil combine to act as a highly effective air scrubber and cleaning machine," reports Dr. Bill Wolverton of the Plants for Clean Air Council, an advocacy group based in Reston, Va.

PEOPLE AND PLANTS

Humans experience a sense of well-being when around plants, research indicates. Psychologists have found an attractive landscape reduces stress significantly. A Kansas State University study found people begin to relax within five to eight minutes of being placed in a room with a foliage plant.

The positive influence of plants on hospitalized or confined patients is well-documented. One study found hospitalized patients with a view of plants recovered in 7.9 days, compared with 8.7 days for a control group. They also required less potent painkillers, experienced fewer complications and reported a much more positive hospital stay.

Other studies found significant increases in conversation among patients, time spent in the dining room and food intake when flowering plants were placed in hospital dining rooms.

PROPERTY ADVANTAGES

The desire to live closer to nature has prompted many Americans to move to wooded areas. Such scenic places, however, often are prone to wildfires. A well-maintained landscape helps protect residences bordering wooded areas.

"The greener your landscaping is...the better chance it has of stopping a fire from spreading," says T.G. Tomberg, battalion chief of the Santa Barbara, Calif., fire department. "Healthy, green trees, shrubs and lawns are one (defense) that could prevent a house from catching fire."

Additionally, especially in a soft economy, landscaping can raise property values. According to a recent survey of nearly 200 California appraisers and real estate professionals, a well-landscaped home increases property values significantly and can speed up selling time by five to six weeks.

Landscaping, complete with a variety of ornamentals, increases property values and can speed up selling a home by five to six weeks. Attractive landscapes have curb appeal, real estate agents say.

When prospective buyers approach a home, the landscape is among the first things they notice. Real estate agents estimate 95 percent of house shoppers won't even get out of their cars if the home lacks curb appeal. The same applies to business centers trying to lease office space.

Money magazine estimates homeowners can expect to recover 100 percent to 200 percent of landscaping investment when selling their homes.

In addition to visual and environmental benefits, plants handle a variety of other tasks. They can direct pedestrian and vehicular traffic, as well as enhance the appearance of roadways. Likewise, shrubs screen headlight glare from oncoming traffic.

But for many, the greatest benefit is the personal enjoyment landscaping provides. Strategic use of specialty pesticides and mechanical controls ensures healthy plants for today's healthy lifestyles.

VEGETATION MANAGEMENT

APPEALING TO SIGHT AND SAFETY

Traveling cross-country, we revel in the scenery — the majestic redwoods of the Pacific Northwest, the mighty peaks of the Rocky Mountains, and the beauty of our sculptured roadsides.

While vegetation management, better known as weed and brush control, may not capture the sightseer's fancy, its role in improving efficiency, effectiveness and safety cannot be denied. It is a must for roadsides, plant sites, government installations, railroads and utilities.

At utility sites, for example, vegetation growth controls reduce the number of power outages and shortages, particularly in rainy, windy weather. While mowing and other mechanical methods keep weeds in check, specialty pesticides help achieve the desired results without undue hazard to valuable plants, the public or wildlife — at a cost much lower than mechanical methods alone. In Lowndes County, Miss., for example, a 4-year combination mowing/specialty pesticide roadside program saved the county $110 per mile annually, compared to mowing alone. In a program that encompassed 650 miles of right-of-way, the annual savings totaled $71,500.

However, the advantages of specialty pesticide vegetation management go beyond dollars and cents. Reduced frequency of mowing means fewer damaged windshields from flying debris and fewer traveler and worker injuries.

Specialty pesticides, used properly, control noxious weeds that threaten nearby crops and native vegetation. Their appropriate use in controlling undesirable weed growth also allows wildflowers and desired grasses to take root along right-of-ways.

Weed control also enhances travel conditions for the driving public.

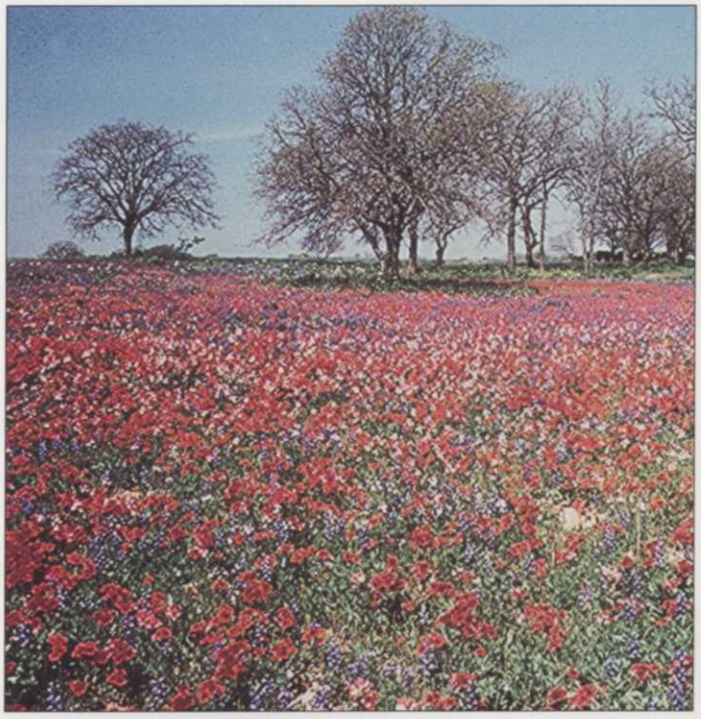
Studies indicate fewer collisions with wildlife occur when roadsides are clear. When vehicles accidentally leave the road, properly maintained roadsides provide needed space for emergency stops. Attractive median plantings also help drivers overcome the tendency to doze during long trips.

Vegetation management makes signs easier to see and lengthens sight distance. Road signs serve as safety warnings and travel guides. Safety hazards occur when such signs are hidden by trees and overgrown vegetation.

Likewise, drivers need good sight distance for safe stops and passing.

Vegetation management improves drainage, helps roads last longer and improves snow drift management. Overgrown weeds along the road shoulder prevent water from draining off rapidly.

While the absence of overgrown weeds may go unnoticed, the public safety and environmental benefits of vegetation management, bolstered by the use of specialty pesticides, are hard to miss.



Specialty pesticides have allowed roadside managers to control noxious weeds and establish eye-catching wildflower programs.

DID YOU KNOW?

Overgrown vegetation, whether alongside roads, railroads or public utilities, is unsightly and often unsafe. Aided by specialty pesticides and mechanical control methods, vegetation management:

- Eliminates noxious weeds. Many weeds, including bindweed, Canadian thistle, johnsongrass and kudzu, pose a serious threat to crops and other valuable plants. Some are poisonous to livestock. Specialty pesticides prevent overgrowth of problem weeds.
- Protects public safety. When well-maintained, vegetation in medians along city streets and highways provides a buffer zone against oncoming traffic. It also improves the scenery and breaks the monotony of a lengthy trip. Road signs are more readily visible when weeds are under control.
- Allows workers easy access to work sites. Controlling weed growth along railroad tracks and plant sites increases worker effectiveness and efficiency.

AQUATIC WEEDS

PUTTING A CHOKE HOLD ON PROBLEM PLANTS

A water system is a uniquely balanced and sensitive environment. The vast majority of plant species growing in waters are considered beneficial and only rarely become problems. Natural forces limit the abundance of most native plants.

Many major aquatic weeds, however, have been introduced from foreign lands. In the absence of natural enemies, exotic weeds, such as hydrilla and water hyacinth, grow uncontrolled and rapidly invade new areas. When overgrown weeds interrupt a water system's balance, problems inevitably surface.

Joe Hinkle, environmental specialist, Florida Department of Natural Resources, estimates aquatic plants and algae in natural systems should cover 10 percent to 40 percent of a water body to provide the best habitat for fish and wildlife.

But when much more than 40 percent is covered, the natural water environment often is turned inside out. Overgrown aquatic weeds:

- Clog intake screens and turbines that produce hydroelectric power;
- Provide a breeding site for mosquitoes, carriers of human and animal disease;
- Hinder, or even close, navigation ways;
- Crowd out native vegetation essential for wildlife habitat;
- Restrict recreational activities like fishing, swimming and water skiing;
- Reduce or restrict water flow by as much as 90 percent in irrigation canals needed for crop production and in drainage ditches for flood control; and
- Reduce the value of properties and businesses nearby.

When aquatic problem weeds are managed, the environment responds positively.

Using specialty pesticides, as part of an integrated pest management system, to control unwanted water weeds gives other vegetation — types preferred by fish and beneficial aquatic insects — a better chance to compete. In fact, before aquatic products are registered, they undergo a myriad of tests to ensure no negative impact on fish and other aquatic species.

A well-balanced water body provides food, open areas and cover for waterfowl and other wildlife. Fish populations increase, and invertebrate foods, such as insects, snails and grass shrimp, thrive. A balanced aquatic environment produces oxygen vital to the survival of animal species.

Fish, birds and other animals thrive when bodies of water are free from overgrown vegetation.

DID YOU KNOW?

Specialty pesticides contribute to a cleaner, healthier aquatic environment. By using specialty pesticides to keep aquatic weed growth in check, an aquatic maintenance program:

- Reduces management costs. Managed weed control allows a consistent flow of water into hydroelectric turbines, irrigation canals and drainage ditches. It keeps navigation ways open.
- Reduces complaints from the public. Weed control helps maintain strong property values for lakefront property owners.
- Increases recreational use and revenues. Weed control reduces fluctuations in water temperature, oxygen and pH levels, thus preventing fish kills.

Sport fish populations thrive in well-maintained bodies of water. Lake residents and their guests welcome the opportunity to swim, ski and enjoy other activities in weed-free water.