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PESTICIDES ISSUES: PUBLIC IGNORANCE IS NOT BLISS

by Terry L. Witt

At our current level of technological sophistication, pesticides, when combined with other sound management practices, are not only valuable but ESSENTIAL tools of the arborist. The fact that some will disagree with this statement, or specifically with the use of pesticides in arboriculture, however, should be no great surprise to anyone. We are constantly reminded of those who oppose the use of these tools every time we pick up a newspaper or turn on the television set.

Total consensus on such issues is unrealistic for many reasons, perhaps the most basic being an individual's inalienable right to freedom of speech. Freedom to speak airs different opinions and this difference creates controversy. While controversialism can play a positive role if it leads to constructive change, it is more often negative, leading to bitter, sometimes violent, conflict and extreme polarization. When this occurs, such as the conflict over insecticide use for gypsy moth control, complex issues tend to become over simplified into two diametrical positions (good verses bad, safe verses hazardous, unlimited use verses total ban) with no middle-ground. In the real world few controversies are that "black and white." The pesticide issue is no exception.

To make an informed decision regarding one's position on the use of chemicals, it is paramount that you go beyond the traditional risk verses benefits evaluation. Scientific data and economic facts are essential elements to consider, but it is also vital that one understand the social, legal and political climates that impact on the entire

decision-making framework. Perceptions, whether they are based on fact, misinformation or emotion, must be dealt with if we hope to reach a solution between the two "black and white" positions. A flash-back through the past thirty years can shed light on the complexity of this issue as it exists today.

In the 1950's, industry flourished in the post World War II atmosphere of "better things through modern technology." New products and synthetics were eagerly accepted by the public. Science and its advancements to the quality of life were placed on a pedestal.

By the 1960's, however, things began to change. Society began to raise unheard of questions about the legitimacy of business and governmental decisions alike. A new wave of doubt and skepticism pervaded public opinion. For the agricultural related industries, this new era of concern was elevated to a position of prominence with the publishing of Rachel Carson's book, *Silent Spring*, in 1962. Although many experts refuted the emotion-packed allegations levied in the book, looking back, there is no doubt that Ms. Carson's book was a major catalyst for changes that would subsequently transpire—some of which were to the betterment of both industry and the public.

In the mid to late 1960's, both the anti-Vietnam war and the environmental movements began to grow. New organizations were formed, including several which adopted a more radical environmental posture. In response to the unrest of the late

60's, the 1970's saw a new wave of regulatory action. The EPA was formed and environmental law proliferated. The anti-establishment, anti-Vietnam war movement transformed its focus to world-wide environmental concerns, and the "green power" counterculture continued to grow in numbers, in resources and in political influence.

The 1970's also saw concern over cancer increase, specifically the fear of chemically induced cancer, or *Chemophobia*, as it has been dubbed. The public was besieged by media accounts of chemical compounds suspected to cause tumors in laboratory animals, and speculations as to the meaning of the scientific data. Rapid advances in analytical detection allowed researchers to detect traces of compounds where they could never be detected before. These analytical breakthroughs were, and still are, occurring faster than our ability to understand the significance of the smaller and smaller numbers they generated. This further bewildered a fearful public.

It is at this point that product casualties began in our industry, starting with DDT. Additional bans, suspensions and restrictions on other products like 2, 4, 5-T followed in DDT's wake, in spite of the many attempts to show that such actions were scientifically unjustified. This set the stage for the 1980's and the emergence of a new strategy by some groups who opposed the use of pesticides.

Today the controversy is not only focused at the federal government but expanded to state and local levels as well. Attacks have been enlarged from those concerning specific products to issues which can have effect on overall use of any product, such as aerial application, groundwater, posting, prenotification and chemical trespass to name a few. While these are important issues to address, their fate, unfortunately, is being determined by lawyers in the courtroom rather than scientist at our research institutions. This is not in the best interest of business or the general public.

What impact does all this have upon the use of pesticides today? It has created an unrealistic set of primitivist environmental beliefs and attitudes which threaten to erode the legitimacy of technological and industrial advancement. We hear talk of the "good old days" and fantasy about living like Abe Lincoln, but the same folks also want a dishwasher, micro-wave oven, television,

two automobiles and a 7-Eleven store around the corner just in case they run out of frozen gourmet dinners. Today, the average life expectancy is at an all-time high of 74.2 years. As recently as 1900, however, it was only 47.3 years... But, those were the "good old days."

When this mind-set is coupled with a general lack of scientific understanding, modern technological tools like insecticides are judged using a collection of flawed concepts: *Natural is good and synthetic is bad.* — *If a substance is toxic, it is a hazard.* — *Risks are unnecessary and can be eliminated.* — *"Zero" is the only safe level for a chemical detected in our food, water or environment.* — *Insecticides kill insects; insects are living things; therefore insecticides must be deadly to all living things.* — *Trees are an abundant natural resource which grow by themselves and do not need management.* — *Gains in efficiency or productivity by industry only benefit company coffers.* — *Businessmen care only about profits, at the expense of the environment.* Any actions based upon these fallacies are destined to create problems.

What then are the facts about pesticides use in arboriculture. Are they safe to man and the environment? Are they a needed, beneficial tool? Should they be used or are there viable alternatives? Unfortunately, these questions cannot be answered by a simple "yes" or "no".

The correct answer would depend upon the details of the specific use in question and a judgement as to the value of any benefits derived. An analogy can be drawn with the automobile. Is it safe? Is it necessary or are there alternatives? Clearly, the best answer would be "it depends." The better question to ask regarding either the automobile or pesticides is, "should one be able to use it, if he so chooses, provided he uses it responsibly?" The answer here is a categorical "YES" and is supportable. Let me give you an example.

The need for wood and forest products is growing and the demand is not expected to diminish in the near future. Each year the average American uses the equivalent of a 16-inch diameter, 75-foot tree in paper and wood products. The national per capita consumption of paper and paperboard products alone has almost doubled in the last three

decades, to over 700 pounds per person per year. Unfortunately, it typically takes about *fifty* years to grow that same tree we each use every year. It doesn't take a mathematical genius to figure out that we could soon be facing a supply and demand problem. To make it more challenging, the forester must overcome a declining timberland acreage base and increases in tree mortality, particularly due to insects. In the southern U.S. alone, more than one-half million acres of timberland are being lost each year to farm, urban and suburban expansion. To meet these needs and do so at an affordable price to the consumer, sound forest management will be a must. Practices such as chemical site preparation and competitive vegetation control have been shown to increase the amount of usable timber grown per acre in the same period of time by 400 percent!

Pesticides can be used safely and millions of applications are made each year without incident. Pesticides along with prescription drugs are the most thoroughly tested and strictly regulated products on the market today. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA, as amended) is the primary federal law regulating pesticides in the United States. The EPA has the authority for administering and enforcing this act. By law, before a pesticide can be marketed in the U.S. it must be registered with the EPA. This means that an applicant must submit data to the Agency adequate to demonstrate that the intended use will not pose risks of unreasonable adverse effects on human health or the environment when used according to its approved labeling. The toxicological, environmental and efficacy testing required for this registration process typically takes from seven to nine years to complete at a cost of over \$30 million. This cost is not paid by taxpayers, but by the registering company alone.

Every substance in our universe can have a toxic effect at a high enough dose. Conversely, even highly toxic materials do not represent a significant hazard if the exposure is low. The salt in the average salt shaker on our kitchen table is more than enough to kill a fifty pound child if ingested at one time. The same amount eaten over a longer period of time is harmless. Interestingly, some of today's herbicides are less toxic than salt.

Pesticides, as is true with any type of product, chemical or otherwise, are neither inherently "safe" nor "dangerous". Like the automobile, the greatest potential to cause an adverse effect is the manner in which they are used. It is everyone's responsibility to help ensure the proper end use of pesticides. For nothing we say in a public relations program will ever compensate for bad use or improper product stewardship. Actions do speak louder than words.

Each pesticide has unique characteristics which must be considered for each specific type of application. Factors such as selectivity, mobility, persistence, aquatic and mammalian toxicity will vary from product to product. These in combination with *geo-physical* details of the intended site will determine which products, if any, are acceptable for that use and the best method of application.

As new technology emerges we will undoubtedly find alternatives to pesticides as we know them today. Until that time however, it is important that the public, decision makers and industry alike do three things.

First, become more knowledgeable about all sides of this issue. This includes the scientific facts and data; the legal perspective on laws which govern and impact our business; the political aspects; and opinion. Interestingly, we are beginning to learn, in many cases the hard way, that the most important elements of any particular issue are not always science and law as we have thought in the past. PUBLIC PERCEPTION IS REALITY and so are the political and regulatory processes which react to it.

The famous public opinion researcher, Daniel Yankelovich, says it this way: "In scientific circles, it is always assumed that the public and society at large must catch up with science and technology... It is always the public that must learn more about science. Little is said about what science must learn about the public."

Second, we must search for that "middle-ground" to the current pesticide controversy. We need to answer the questions: where are their uses warranted and where are they not; where, if used, do they pose an unreasonable risk and where, if not used, would there be an unreasonable penalty? Remember, few issues if

any are 100 percent black or white... and to *successfully* operate in the gray between zone requires greater knowledge and judgement.

And third, we must learn to become more *effective* and *willing* communicators. We treat and fear the media as the enemy. While we should never underestimate the power of the media, we can learn how to work with them and communicate to all publics *through* them. We cannot continue to hide and allow those who oppose our technology to prejudice public opinion without challenging their biased positions. It takes training to become an effective communicator, just as it takes training to become a good scientist.

I am optimistic about what the future will bring. Dr. Jay Hair of the National Wildlife Federation made some encouraging comments in a speech about a year ago: "We need to pursue positive options that produce winners from both the economic development and environmental protec-

tion perspectives. The problems we face as citizens of the world demand that we not waste our efforts fighting unnecessary battles."

As Dr. Hair said, we do have better things to do than to fight for ridiculous extremes. We need to listen to the public's concerns, learn how to communicate with them and then answer their questions in a "language" that they can understand. If we don't, a misguided public perception may create a political "solution" devastating to our standard of living and economy alike.

I, for one, understand the benefits of pesticide use and have no desire to regress back to what some may call the "good old days"!

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Abstract

SYDNOR, T. DAVIS, 1987. **Trees which have performed well in urban areas.** *Arbor Age* 7(2): 12-16.

Urban sites are abnormal for most all plants. No plants require concrete to survive, but some will tolerate the conditions better than others. Urban sites are characterized by compacted soils, high light, high temperatures, channelized winds, restricted root zones, drought stress and chemical contamination. The wonder is that some plants can tolerate such conditions and survive for 20 years or more. However, a look at the problems will enable the designer to make a more reasoned choice when selecting a plant for a specific location. The following plants include trees which have grown well in urban areas, based on Ohio's Shade Tree Evaluation Project and other professional experiences. The list is applicable in varying degrees to the rest of the country: red maple, river birch, hawthorns, green ash, sugar hackberry, ginkgo, skyline honeylocust, Kentucky coffeetree, American sugargum, and southern magnolia.