CURRENT ISSUES IN URBAN ENTOMOLOGY: RESISTANCE, LEGISLATION, PUBLIC PERCEPTIONS

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Good afternoon, it is both a pleasure and an honor for me to have the opportunity today to share with you some issues that will have far reaching impact upon the future of the urban pest control industry. My presentation will digress somewhat from the original title in that I will cover two quite different primary topics. The first is insecticide resistance. This is a technology driven issue and, from my perspective, the urban pest control industry has much to be proud of in how we are dealing with it.

The second topic is public perception. Public perception will continue to be the driving force behind the largest threat our industry faces - the dreaded "ations". That's not Asians with an s and an a, it's ations with a t and an o. Specifically I mean legislation, regulation and litigation. This is definitely not a technology driven issue and I believe the urban pest control industry has a long way to go before we can feel proud of our accomplishments in this area.

Let's talk about resistance. There are two questions that we must answer relative to the resistance issue. The first is, will resistance always be a factor the urban pest control industry has to deal with? The second is, will resistance become a limiting factor in our ability to provide effective insect control?

I believe the answer to the first question is easy. It's yes. As long as we are applying various treatments to control pests, the threat of resistance will always hang over us.

Answering the second question is a bit more difficult, but I will take a bold step and say the answer is no. When I say no, however, do not take that to mean that we do not have to do anything about resistance. On the contrary, I'm saying no because of the many things this industry is already doing to stay ahead of the resistance problem. When I say no, I do not mean that individual products, or groups of products, will not fade away due to resistance problems - that may well happen. What I mean is that I see ample evidence that from an industry perspective we will be able to stay a step or two ahead of the problem. What are these bits of evidence I am referring to?

The first is simply recognition of the fact that resistant populations of various urban insect pests do exist and do not respond to typical treatment programs. This is critical. You cannot solve a problem if you deny it's existence.

The second point is that there is a significant amount of research ongoing within academia and other parts of the industry that deals with resistance in urban insects. Some of this research has resulted in programs being recommended by at least two manufacturers targeted at preventing the development of resistant strains of cockroaches. The important point here is not whether one program is better than another or whether these will be effective in reducing resistance already present - it is the proactive nature of the recommendations. Targeting the prevention of resistance rather than trying to overcome it will benefit the industry greatly in the future.

Increasingly sophisticated delivery systems that allow more precise, targeted applications and the rapidly growing use of baits will aid in the prevention of resistance. Similarly, many changes in the methods of applying insecticides will also contribute. Specifically, moving away from monthly service to longer treatment intervals; moving away from indoor broadcast treatments to more localized applications; and increased use of outdoor perimeter sprays to prevent infestations as opposed to indoor treatments to eliminate them all should contribute to lower tendencies for resistance to develop.

In addition, new chemistry continues to be made available. When I say new chemistry, I do not necessarily mean just another new pyrethroid or other analog of an established area of chemistry.

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The urban pest control industry has, within the past few years, witnessed the introduction of several new classes of insecticides and growth regulators, and I can think of at least three additional new promising areas of chemistry that will become commercially available in the near future. The bottom line is that from the standpoint of diversity of chemistry and modes of action, the trade will possess an unprecedented arsenal of weapons. This diversity will provide a greatly improved opportunity to avoid resistance.

The last point on this list is pest management programs. In hearing people talk about pest management in an urban setting, there is obvious confusion in the definition of what this means. Although this confusion exists, I am of the opinion that the pest control industry has done an excellent job of embracing the broad concept of pest management. Most of the points mentioned earlier regarding the items on this slide contribute to the concept of pest management. If you combine that with the widespread understanding of the need for pest monitoring, sanitation, and structural modification, it is clear that we may be well ahead of our agricultural brethren in implementing IPM.

One note of caution, however, is the fact that the public's tolerance toward sharing their residences and food supplies with insects will continually decrease. The public wants their urban pest problems controlled - not managed. Perhaps the term Integrated Pest Control rather than Integrated Pest Management is a more appropriate term for us to use. The future will therefore demand even better pest control practices. The way to achieve this is not to simply use more chemicals. Insecticide resistance is a direct result of not using an integrated approach to control. Remember, the effectiveness of chemicals is preserved through integrated use and destroyed through exclusive use.

In summary, the urban pest control industry has much to be proud of in how the resistance issue is being dealt with. However, we must continue to be diligent in maintaining a high level of awareness and proactivity in implementing integrated programs.

Let us now move to the second topic, public perception. My goal today is not to discuss specific legislative or regulatory issues that will impact our future - and there will be many - but rather to try and convey an understanding that a poor public perception is a driving force behind the significant increase in legislative and regulatory activity that we are being subjected to.

No one can dispute the fact that the public's overall perception of pesticides is poor. Their perception of the pest control industry is also poor - perhaps due to guilt by association. Where does this perception come from? While most people would typically point their fingers at chemical manufacturers or pest control operators as being the culprits behind our perception problem, this is truly a case of shared responsibility. While my purpose today is not to uniformly insult everyone in this room, I would like to leave a take home message that while our individual day-to-day activities may be focused on one segment of the industry, we all play a critical part in defining its overall perception.

Let me propose for you this model to help define the individual groups that ultimately impact public perception (Figure 1). As you can see, I have identified five primary contributors to the perception of us as an industry. The outer circle comprises what we will call our circle of concern and includes the public and special-interest groups. The inner circle comprises our circle of influence and includes manufacturers, pest control companies and the academic community. Let's explore the impact of these five groups in more detail.

When I say the public and special-interest groups fall within our circle of concern, but outside our circle of influence, what do I mean? Fundamentally, while these groups have a significant impact upon perception, we have a very limited ability to influence them. We can't directly change their habits, their thought process or their agendas.

You might ask why the public itself is included on this model. If they are the target group that we are trying to ultimately impact, how can they also be an influencer? I will offer that it is the attitude of the public that is the critical issue here. As an example, for years, pesticide and other synthetic chemical residues in food or the environment have been the whipping boy for various ills suffered by society as a whole. The so-called "cancer connection" is a prime example of this. Experts such as Dr. Bruce Ames, professor of biochemistry and molecular biology at the University of California at Berkeley have found that most cancers are caused by aging, diet, smoking, chronic infections or hormones. We also know that increasing consumption of fruits and vegetables, eating less, and

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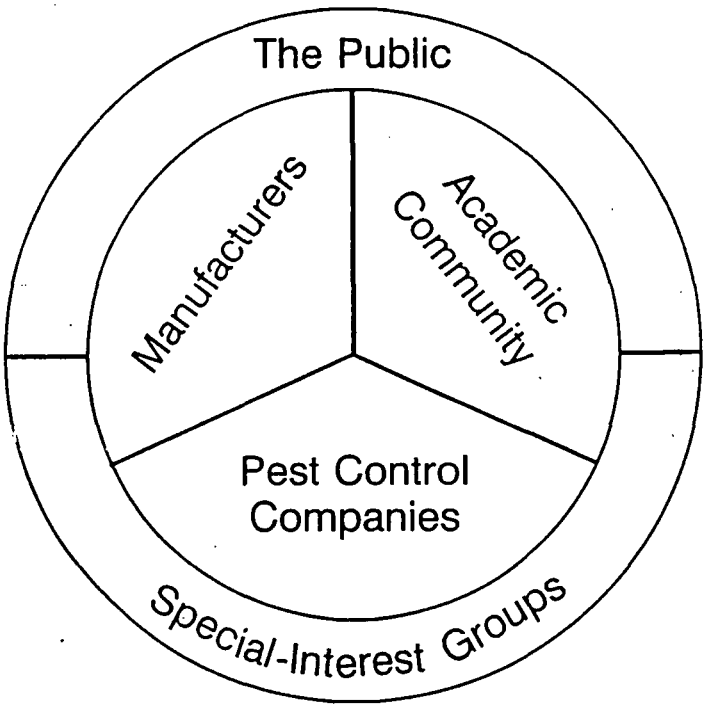

Figure 1. Public Perception Model – Circle of Concern v. Circle of Influence

taking dietary supplements of anti-oxidants, such as vitamins C and E, lower cancer risks. For the public, however, it is easier to blame illness on chemicals in the environment than it is to make tough choices and change living habits. It's easier for society to spend billions of dollars of our children's and grandchildren's money overregulating chemicals while we continue to smoke, eat too much, and toss vegetables in the garbage. This attitude makes us easy prey for the incredible growth in regulations that burden society and make us increasingly less competitive in the world economy.

A second example I can point to is society's increasing need to assign blame. If we get sick, if we lose our job, if our children don't do well in school, if our marriage fails, it's not our fault - someone else or some organization is to blame. If someone gets lung cancer after smoking for decades, it's not because they ignored the overwhelming amount of information rained on society about the dangers of smoking, it's because they weren't adequately informed of the risks. We see countless examples every day that are simply attempts to shift all responsibility for individual choices and actions away from the individuals themselves. This provides fertile ground for the ever increasing number of attorneys running around looking for someone to sue.

Let's move to the second group that falls within our circle of concern - special-interest groups. These clearly impact public perception because they are vocal, typically well funded, and often assume a purely adversarial posture. Webster defines a special-interest group as one "having an interest in a particular part of the economy and receiving or seeking special advantages therein *often to the detriment of the general public*". If you do not consider the underlined part of this definition, you could make the argument that we all belong to one or more special-interest groups. Businesses, for example, are always striving for a competitive advantage through the development of improved products or services. The special-interest groups I refer to in my model, however, are those in which the underlined part is included. In fact, I believe a better name for these is self-interest groups. I include in this definition all of the quasi-environmental organizations composed of people who call themselves environmentalists, but in truth are against one kind of technology or another and invoke an environmental banner in an attempt to add legitimacy to their position.

How can you identify a self-interest group? Usually it's very simple. Their position is typically one

of saying "what you are doing is wrong, we want you to do things our way". This immediately sets up a relationship that can have only two possible outcomes - win/lose (someone wins and someone loses) or lose/lose (both parties lose). A special-interest group that does not operate to the detriment of the public will more typically take a position of willing to build a consensus decision that allows a win/win relationship to develop. Regardless of what you call them, special-interest groups do play a major role in establishing public perception.

Let's move now to the even more important circle of influence. While we cannot directly influence the groups outside this circle, we can certainly influence our own behavior as it relates to the development of public perception. We could add other groups to this inner circle. For example, we could add consultants, for they certainly are impactive upon our industry's interface with the customer, and we could add formulators, retailers, or other key groups within the distribution chain. I believe, however, that the three groups you see bear the lion's share of the accountability for overall public perception.

Let us begin with the pest control companies. Certainly they have the most direct dealings with the end use consumer. Because of this direct interaction, the impact of these companies is clearly obvious - a high level of customer satisfaction leads to a good perception whereas a poor level of customer satisfaction certainly leads to a poor perception of the pest control company, at minimum. If a relationship with an unhappy customer is not handled well and becomes confrontational, that poor perception will multiply via word of mouth, or in some cases via the news media.

The second group within the circle of influence comprises the manufacturers. We share a legacy of poor perception with the entire chemical industry that, over the years, has resulted from a number of memorable or controversial issues - Love Canal, Bhopal, Agent Orange. Issues that involve manufacturers are typically large scale in nature and involve widespread publicity. Right or wrong, valid or not, issues that flare up within the chemical industry always leave behind the ashes of mistrust and poor perception in the mind of the public. In an age of increasing criticism of new technology and a romantic nostalgia for anything "natural", chemical manufacturers become a convenient target for a variety of special-interest groups.

The third group within our circle of influence is the academic community. Some of you may be a bit surprised to see this group listed, however, I believe the academic community has, perhaps inadvertently, been a major contributor to the poor perception of our industry.

Let me explain. As I sit through presentations at various professional society meetings, I can't help but notice how many papers have as an objective - to reduce pesticide use. Stated in this way, this leaves a subliminal message that pesticide use, per se, must be bad. Reducing pesticide use for no other reason than just reducing pesticide use has become a noble goal to many in the academic community. I would ask those of you involved in pest control research and those of you charged with the responsibility of bringing forth the new generations of scientists and technicians for our industry, do we want people objectively focused on providing the best integrated solution to the needs of the customer, or do we want people narrowly focused on simply finding alternatives to pesticides irregardless of how well they satisfy the needs of the customer? We will return to this later.

As you can hopefully see, all of these groups within our circle of influence play a critical role in forming the public's perception of our industry. To be quite candid, The reason pest control companies, manufacturers, and the academic community have all contributed to some extent in the poor perception we have today is that we all have, on occasion, behaved like self-interest groups.

To the pest control companies, if you do not provide adequate training to the people handling the products, if you do not effectively and honestly deal with the concerns of the customers, and if your desire to sell your services causes you to cut corners and not follow label directions - you are acting like a self-interest group.

To the manufacturers, if you do not maintain a high level of cradle-to-grave stewardship with your products, if you, too, do not effectively and honestly deal with the concerns of the customers, and if you pick and choose data to provide misleading performance expectations for your products, you are acting like a self-interest group.

To the academic community, you are acting like a self-interest group if you lose your objectivity, or if you forget that when it ultimately comes down to satisfying the needs of the end-use customer, it is easy to be a proponent of alternative treatment practices when neither your business nor your reputation are at risk.

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Admittedly, in today's difficult business climate, resources are scarce and competition is fierce. It is truly difficult not to act like a self-interest group. However, we must remember that a small gain today does not balance a huge loss tomorrow if we continue to sacrifice the perception of our industry.

Let's talk specifically about an example of how to build poor perception. The example I will use is how we have reacted to the elimination of chlordane from the termiticide market. This product was removed from the market in 1987. At last December's meeting of the Entomological Society of America, an entire afternoon session was devoted to a discussion of whether the customer is better or worse off today without chlordane. In addition, different forms of this question appear with regularity in a variety of trade publications and other meetings. While there is typically much discussion on this question, we usually do not hear an answer. Today, I'm willing to volunteer an answer, which is "I don't know and who cares".

I am not trying to be flippant about this. Certainly, severe regulatory action against any product is of concern to us all - especially if we feel the action may lack a sound basis of scientific merit. Clearly, no one will suggest that from a performance perspective chlordane was displaced by superior technology. It was removed due to public and regulatory concerns over toxicological and environmental issues. If you listen to what is being said in this continuing eulogy of chlordane, what are the consistent comments we hear? I can think of four:

1. It was very persistent in soil
2. Labelled rates were much higher than needed for control
3. It was a very inexpensive treatment.
4. Because of the above, applications could be less precise and still provide control.

Ladies and gentlemen, I ask you how this message would be received by a consumer base highly concerned about excessive pesticide use, persistence, exposure or sloppy application techniques. Clearly, this vision of the "good old days" is not shared by the public. Wanting to know if the customer is better off without chlordane, or mirex, or DDT, or 2,4,5-T, or the horse and buggy for that matter, is truly irrelevant. The technology graveyard is filled with products that used to be the solution to our needs.

What is relevant concerning the chlordane example is a very strong message to all of us that the business environment today is forever changed. Historically, business followed an evolutionary path wherein older technology was gradually replaced by newer, better technology. Today, we have to realize that we are all susceptible to a catastrophic event. Technology is as likely to be replaced via regulatory activity as it is through the introduction of a better product.

What does this mean to us as an industry? It will be very difficult or probably impossible for us to change the environment in which we have to survive. The threat of the dreaded "ations" will continue to plague society. Legislators will legislate, regulators will regulate, litigators will litigate, and their actions will not always be consistent with the real needs of society. Unfortunately, we have to accept the fact that the there can be a significant amount of self-interest within these groups. Other special-interest groups as well, will continue to apply pressure for whatever cause they expouse and the future will probably see more of this rather than less.

I doubt that the attitudes of the public will change favorably. They will continue to be predisposed to shifting blame rather than accepting difficult choices. Also, as risk communicators such as Dr. Peter Sandman of Rutgers University tell us, the public will continue to perceive risk as being the sum of the actual hazard plus a term called the outrage factor. We must accept that many aspects of what our industry does contribute to a high outrage factor. Much of the public's exposure to pesticides is involuntary. In general, pest control is not something they are knowledgeable about, or familiar with. There have been a number of very memorable issues over the years involving pesticides. Hiring a pest control company to treat your home or property puts the control in the hands of someone else. Finally, like it or not, to much of the public, chemical companies and pest control companies are perceived as being untrustworthy.

What all of this means is that the public will generally be very accepting of issues and incidents that contribute to our poor perception.

This leads me to the final point I wish to leave with you today. If we hope to continue to provide a critical and valuable service to society, we - and many other industries as well - must do something

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to reduce the burden of the excessive and often frivolous regulation, legislation and litigation that we carry. This can only be achieved if we do a better job of building an improved perception of us in the eyes of the public. If the political and regulatory environment in which we have to survive is not going to be more favorable, our only option is to do a better job of protecting ourselves.

I will offer that if we want the public to think better of us, we need to present a unified front and we, as an industry, need to do a lot of things better - specifically:

1. Focus on the needs of the customer. Our collective end-use customer is the public. Their needs will not change. They want professional service. They obviously want products that are highly effective and at the same time offer low exposure and a minimum of risk to their health or the environment. Even though we could make a strong argument that this is what is available today, it is obvious that the public does not agree with us. Believe me, giving them what they want will be far easier than changing their opinion.
2. Focus on today's and tomorrow's technology, not yesterday's. Wasting time commiserating about how great things were in the old days with this or that cheap and effective product is not only unproductive, but also leads to a negative perception if the public believes those products disappeared for good reasons. Our job is to optimize the technology we have available today and to continue the search for improved technology for the future.
3. Remember who the enemy is. The enemy is the myriad of pest problems that plague society - not the technology or businesses that service society's need. From a manufacturer's perspective, if you tell me your goal is to simply reduce or eliminate pesticide use, you're telling me I'm the enemy. If you tell me you're trying to provide a better solution to the customer's needs, we're on the same team - even though what you're doing may reduce pesticide use. You must remember that pesticide manufacturers are not against other alternatives for pest control. The primary reason most manufacturers are having trouble dealing with "lower perceived risk" alternatives to synthetic chemicals is that most of these are of lower risk to the pests as well. We are in business to sell solutions to problems. If you can offer me non-chemical technologies that end-use customers are willing to pay for and that meet their performance expectations, to quote a former U.S. presidential candidate, "I'm all ears".
4. Recognize and work within your circle of influence. Every individual, every one of you involved in the pest control industry has a circle of influence. It may be small and include only yourself or it may be much larger. To those of you in the academic community, due to your education and training responsibilities and your critical leadership responsibility for providing unbiased third party input and direction, you may have the largest circle of influence of all.

In summary, remember this. While we all may decry the tremendous growth in excessive legislation, regulation and litigation being directed at our industry today, we need to recognize that the driving force behind this growth is our poor perception in the eyes of the public. None of us can change this perception directly. Collectively we have a chance if we accept that we are all on the same team. Within any successful team there is competition for the various positions, but when the whistle blows everyone has a unity of purpose. Within our industry team, competition between manufacturers, between pest control companies, and even within the academic community is healthy and drives us to continually improve. But when it comes to public perception, we need to realize the game has already started and we must have unity of purpose. We must all focus on the needs of the customer; focus on today's and tomorrow's technology, not yesterday's; remember who the enemy is, and finally, recognize and work within our circle of influence. Remember the most important person within our individual circles of influence is ourselves. We cannot beneficially impact public perception as a group unless we first improve our actions as individuals.

In conclusion, we've talked about resistance and public perception, two critical issues facing our industry. One is technical, one is not. One we're doing well on, one we're not. Historically, we have always done a good job of dealing with technical issues. We must now accept the fact that the future of our industry is equally dependent upon our collective ability to deal with the non-technical issues as well.

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