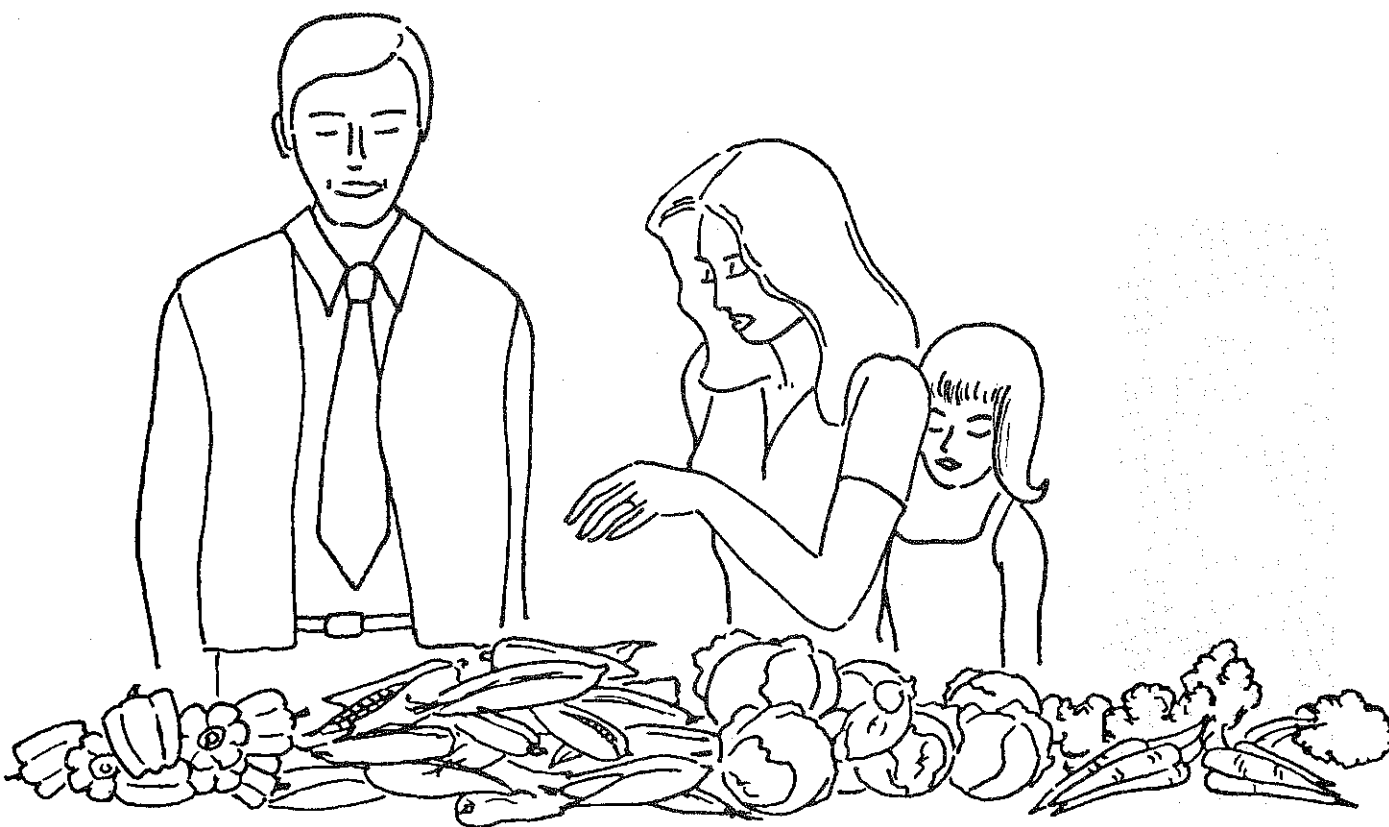


IMPROVING COMMUNICATION ABOUT RISKS ASSOCIATED WITH RESIDUES OF AGRICULTURAL CHEMICALS ON PRODUCE



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I. INTRODUCTION

In 1988 the United States Department of Agriculture's Extension Service (ES-USDA) developed a grants program to fund "Extension Related Programs" which addressed food safety issues. A key purpose of the grant program was to develop innovative approaches to food safety education including the generation of information and materials for the extension system to use with the system's constituents. The issue of food safety has become important to the ES-USDA because relatively little work has been done on it, but more importantly because it has developed into a high profile concern of the general public demanding information and response.

In addressing the issue, the ES-USDA recognized the interdisciplinary nature of the issue, and established an interdisciplinary approach as a funding criterion. In addition, the funded projects needed to address a specific food safety issue, involve producers, consumers, and market intermediaries and provide a set of deliverables which the ES-USDA could disseminate to interested parties throughout the country. Eight projects were funded at different land grant institutions and each focused on a specific area within the food safety arena -- for example, fish products, poultry, and produce.

The project funded at Cornell was titled, "Improving Risk Communication About Pesticide Residues of Agricultural Chemicals on Fresh Produce: A Pilot Project"; Drs. Carole A. Bisogni (Division of Nutritional Sciences) and Enrique E. Figueroa (Department of Agricultural Economics) were the principal investigators. In addition, Ms. Nancy Ostiguy (Field of Environmental Toxicology) served as the Research Assistant on the Project. In short, the project conducted two workshops in New York -- one in Albany and the other in Rochester. At each workshop a diverse group of individuals -- growers, distributors, supermarket chain representatives, legislative aides, newspaper writers, academics, consumer group representatives, regulatory agency representatives, and agricultural chemical representatives -- were brought together for a day long discussion regarding the topic. All participants had some interest and/or responsibility to pesticide residues on fresh produce and each group consisted of twenty to twenty-five individuals. Prior to the workshop, the participants were sent a brief questionnaire.

Subsequently, the participants were provided with a synthesis of the groups' responses to the questionnaire and the agenda for the workshop. A synthesis and analysis of the discussions and conclusions are presented in this document. A follow-up questionnaire was also sent to each of the participants and these responses are summarized and analyzed as well.

II. BACKGROUND AND RATIONALE

The healthfulness and safety of the food supply is and may continue to be of paramount interest to American consumers and thereby to American producers. It seems that each day a new development and its ramifications on health appear in the media -- be it microorganisms in food, fat and cholesterol content

of food, salt intake, pesticide residues in/on food, heavy metal concentrations in fish, or pesticide contamination of drinking water. For example, the July-September 1989 issue of the USDA's National Food Review was devoted entirely to the issue of food safety and many popular press and commodity related magazines have devoted front page coverage to food safety concerns. Also, the United Fresh Fruit and Vegetable Association in conjunction with the Produce Marketing Association established the Center for Produce Quality (CPQ) program to inform the public about the safe aspects of consuming fresh produce. Conversely, the Consumers Union in its May 1989 Consumer Reports devoted front page coverage to Alar (not a pesticide) in/on apples and apple products.

The concern for pesticide residues on fresh produce has also generated a set of related issues and questions -- is it a passing fad; who should the public believe; have fresh produce sales suffered; what can be construed to be facts; are there simple solutions? Within this array of sub-issues, it became apparent to the authors that a cross-sectional perspective was needed to evaluate and thereafter set priorities for these related concerns. Since the underlying issue of food safety is risk or more accurately risk perception by consumers, regulators, industry, and scientists, then the appropriate questions are: is it risky to consume fresh produce and if so, how is risk communicated within the market channel of fresh produce; does the public perceive a health risk from consuming fresh produce and if so, what are the components of the perception; are there different perceptions of risk from fresh produce consumption and if so, who holds which opinions, what are the differences between perceptions and how might these differing perspectives communicate their concerns to each other?

New York State is somewhat uniquely positioned to provide a variety of perspectives because it has both a large number of consumers and significant production of fresh produce. Also, risk communication is an emerging topic of research interest to not only agricultural product researchers, but to the larger arena of individuals interested in the psychological and economic interpretations of risk in everyday life. In brainstorming the issue, the authors felt that at a minimum an attempt should be made to determine whether the following could be answered during this project:

- What are the current perceptions and understandings concerning the risk(s) of pesticide residues on fresh produce?
- Who is or should be responsible for communicating the risk(s) of consuming fresh produce with pesticide residues?
- Is the current system of informing the public about the risk(s) of pesticide residues on fresh produce adequate?
- What role does a land grant institution, such as Cornell, play or should play with regards to pesticide residues on fresh produce?
- With respect to pesticide residues, how (dis)similar are the perspectives of the various participants in the market channel of fresh produce?
Can any agreements be reached between these various perspectives?

- What plan can be formulated to address the issue in a manner consistent with both scientific knowledge and public perception?
- And, who or what institutions should take the leadership in addressing the issue?

Addressing these questions became an ambitious undertaking and this report will document the difficulty encountered in answering the questions. However, the questions served as a guide in formulating potentially attainable goals of the workshops. Also, the provocative nature of some of the questions fomented a lively and open discussion among all involved parties throughout the project's life.

III. WORKSHOP GOALS

From the onset, the interdisciplinary approach required by the funding agency was viewed as essential in addressing the topic of risk communication related to pesticide residues. The complexity of the issue demanded this approach, but more importantly, the topic required diverse and hopefully innovative approaches. In addition, the variety of government agencies with jurisdictional responsibilities in addressing the issue is somewhat unique. And thirdly, within a land grant institution many researchers in the different schools and colleges have relatively little interaction. This approach encouraged attempts to overcome the isolation of various disciplines. Therefore, we salute and encourage the USDA in requiring researchers on this topic to approach it from an interdisciplinary perspective.

More succinctly, the goal of the workshops was to bring together individuals with diverse perspectives and present them with a forum for an open, frank, and hopefully productive discussion. Thereafter, an attempt was made to categorize and analyze the points of view presented to ascertain whether there is common ground to the diverse perspectives. As a result of conducting the workshops, a third goal developed -- namely to provide a written document which the participants could use and/or disseminate to their respective audiences. Finally, and in keeping with the spirit of the funding criteria, the goal of determining the viability and feasibility of working as an interdisciplinary team is pursued.

IV. METHODS

IV. A. Participant Selection

The first step was to assemble a small group of faculty and extension agents to help formulate the pool of potential participants and to determine an appropriate workshop format and focus. The gathering produced both the desired pool and format, however, a consensus on the focus of the workshop was not achieved. There were diverging views with regards to how you define risk communication; should the focus be on how to interpret data about how risks are determined or on how to communicate the risks (or

lack-of risks) that have already been determined by the experts; and do the experts know best what is good for the public or should the public make those determinations?

The authors chose to focus on the risk communication process -- the perceptions of different parties, problems and sources of conflict, and possible strategies for improving the situation. The authors chose the following route to proceed in formulating the agenda for the workshop. First, a list of potential participants was generated and each was sent a letter to inquire as to the level of interest in participating in either workshop. The potential participants were also asked if they objected to being recorded (audio and/or video), and if they could suggest other potential participants?

In selecting the participants, the following criteria was utilized:

- A group no larger than twenty-five individuals. A larger group would not be conducive for an open discussion, nor would it be manageable from the perspective of the moderator(s).
- The group should not be heavily weighted by Cornell Faculty nor extension agents.
- The group should consist of upper-management and/or individuals with decision-making powers.
- The group should be diverse, but with interest and/or responsibilities to fresh produce sales or consumption.

IV. B. Preworkshop Questionnaire

Prior to the workshop a questionnaire was sent to all invited participants to obtain some initial ideas about their involvement and views about the issue of pesticide residues on produce. Appendix 1 contains a copy of the questionnaire. The questionnaire was purposely designed to be brief and ask questions in a neutral tone. An open ended format was chosen to allow respondents to express their ideas. The intent was that by asking respondents to express their views in the questionnaire we would save some time at the workshop in terms of prolonged introductions. Thirty two of the 50 invited participants returned the preworkshop questionnaire. The responses to each question were collated with the individual responses printed verbatim but anonymously. The 19 page summary was mailed to all participants prior to the workshop and a copy of the summary was included in the workshop folder.

The responses to the preworkshop questionnaire indicated that all participants were involved with the issue of pesticide residues on produce to some extent although the extent of the involvements varied. Some educators, growers, writers, and retailers communicated directly with the public and/or farm workers about the issue. Agency and legislative personnel and trade association personnel were more involved with the issue from a policy perspective or grower relations. University faculty members were involved from a research and /or Extension perspective.

IV.C. Responses to PreWorkshop Questionnaire

Why is the issue about pesticide residues so complex and controversial?

The responses to this question indicated respondents had varying perspectives on the issue. The holistic nature of the issue was mentioned as well as the fact that the issue struck at the heart of family, health and the environment. Deficiencies in scientific understanding and the lack of absolute evidence were reported as problematic.

A number of respondents noted the problems in communicating findings from research to the public effectively. They mentioned both the lack of trained communicators and educators and the limited ability of the public to assess risks and use complex technical information. The strong influence of the media and the media's tendency to oversimplify and emphasize conflict and drama were seen as important sources of conflict and controversy.

The public's lack of faith in the government, corporations, and scientists was given as a reason for the high level of complexity and controversy in this issue. Scientists were described as having little interest and ability in the communication process needed to address this issue. The government's dilemma in balancing the need to protect health as well as the need to provide the public with information to make informed choice was also mentioned.

What are the major barriers to minimizing the complexity and controversy?

Many comments regarding the barriers to reducing the complexity and controversy related to pesticide residue on produce overlapped with comments about the sources of complexity and controversy. In addition, respondents noted the lack of absolute evidence and a lack of simple precise documents addressing the questions, conflicting information, and emotional aspects of the issue. Several respondents mentioned the difficulty of finding common ground as well as the self-serving biases and one sidedness of parties.

Will pesticide residues on produce be a long term issue?

When asked if the controversy and interest concerning pesticide residues on produce will be with us for some time, all respondents indicated that the issue would continue to be a concern for a long time. Many indicated that continuing research in a number of fields would keep the issue of high interest to the public and private sectors. Important areas of research mentioned included health, safety, medicine, biotechnology, and the environment. Some indicated that continued public interest in promoting public and individual health and protecting the environment would keep the issue at the forefront. The inherent conflict in the public's desire for pesticide free, low cost, and blemish free produce was another reason mentioned for the longevity of the issue. Other comments included: the chemical industry has a vested interest in pesticides use and the potential for abuses, misuses, and accidents creating newsworthy events

will keep the issue of interest in the future. Some respondents indicated that although they expected the issue to be of high interest for a long time, they expected that public "hysteria" would cycle depending on media activity and other events.

Does fresh produce in New York State present health risk?

When asked about the likelihood of negative health consequences resulting from the consumption of produce in New York State, the 32 respondents had differing views. Seven of the respondents indicated that they did not know. Of the 17 respondents who mentioned pesticides, nine thought that it was definitely unlikely that pesticide residues would cause negative health consequences. Seven respondents noted that it would be probably unlikely and one person indicated it was possible. Four respondents mentioned that negative health consequences could occur from something else including naturally occurring toxicants, allergens or microbial contaminants. Five respondents emphasized that produce has definite health benefits.

Who in New York State should be responsible for making produce safe?

Respondents generally indicated that many parties share responsibility for making produce safe. The parties mentioned were described as having different types of responsibilities including: consumers who should demand safe products; state and federal governments who should establish necessary laws and regulations and monitor compliance, growers and applicators who should be knowledgeable about and use appropriate practices; educators who train growers and applicators; scientists from academia and the private sector who should conduct sound research and provide recommendations to growers; and shippers, handlers, and retailers who merchandize and distribute products.

What is the role of the public's perception of risk in this issue?

Nearly all respondents made strong comments about the overwhelming influence that public perceptions have in this issue. Perception is "reality" and "controls the issue." Respondents noted that perceptions are a driving force in both industry and policy.

What should be the role of Cornell Cooperative Extension in addressing this issue?

All respondents indicated that Cornell Cooperative Extension's role in addressing this issue was as educator, source of unbiased research and information, and/or objective liaison that could work with the multiple parties involved. A few respondents stressed the need for Cornell Cooperative Extension to be more proactive in these roles, and a few stressed the need for Cornell to avoid being defensive of any one segment.

Among the audiences mentioned for these educational and informational efforts were "all involved," growers, other educators, health professionals, media, and the public. One respondent emphasized the need to promote growers' knowledge of sustainable production methods; two respondents emphasized the need to help producers reduce their dependency on chemicals and increase use of integrated pest management (IPM). Consumers and the media were noted as needing education related to the meanings of "safe" and "risk." Respondents noted that all audiences needed concise, up-to-date, readable summaries of scientifically-based information such as fact sheets. A few respondents noted that Cornell Cooperative Extension should provide continued educational outreach on the healthfulness and quality of the food supply including such issues as nutrition and naturally occurring toxicants.

What information would you find useful to help you address this issue?

All respondents reported a need for research-based information including policy analysis to help them better address the issue of pesticide residues. The specific types of information which the respondents reported needing related to: current levels of pesticide use, IPM and organic production; analytical methods and monitoring procedures for residues; current levels of residues in foods; and health effects and risk assessment. Three respondents indicated a need for educational materials including visuals, fact sheets, and press releases.

Do you have any comments, suggestions, or requests related to the upcoming workshop?

The respondents made several comments and requests related to the upcoming workshop. Other respondents requested that: all issues be recognized as debatable; participants come with open minds and be armed with accurate facts; and a positive and informal working environment be established. The presence of a medical doctor and a "pesticide radical" was requested. Several respondents requested information about specific topics including: monitoring and laboratory analysis of residues; risks from natural pesticides; the types of product information, if any, growers should be expected to provide to retailers; and a comprehensive list of biocides and ratings of their risk to handlers, consumers and soils. Another participant requested that mention be made of the efforts made by chemical companies to reduce pesticide exposures and to promote IPM.

IV.D. Workshop Agenda and Procedures

The two workshops took place on June 8, 1989 in Albany and on June 21, 1989 in Rochester. A copy of the agenda for the workshop and a list of the materials distributed are included in Appendix 2. The agenda incorporated the authors attempt at formulating an agenda that both conveyed a sense of direction and focus, but also a sense of openness to the suggestions from the participants. The focus allowed for a concerted effort to concentrate on the subject at hand and not become mired in the array of

different and diverging agendas of the participants. On the other hand, recognizing that many different perspectives exist with regards to what constitutes the issue -- an open agenda ambience was needed to allow for widely divergent perspectives. The agenda was modified somewhat after the first workshop, but the changes were primarily procedural rather than substantive.

After brief introductions by the participants, the substantive components of the workshop began. Figures 1 and 2 were used to put in perspective the concept of risk if one bases the concept on the probability of dying from certain activities and/or occurrences. Although the probability of dying is only one way of interpreting risk, it was felt that most participants could readily relate to this particular measure. The special risks category range from 3,000 deaths per 1,000,000 people (.003 probability) for cigarette smokers who smoke one pack per day to 0.1 (.0000001 probability) for being hit by a falling aircraft.

Figure 3 precipitated a lively and constructive discussion. The figure presents a rather simplistic statistic--U.S. per capita pounds of pesticides applied in agriculture in 1965, 1975 and 1985. As evidenced from the figure, the rate more than doubled between 1965 and 1985. Explanations included increased exports, less effective pesticides, more marginal acres planted, and more reliance on monoculture and thereby greater needs for pesticides per output. Does the figure reflect use of copper sulfate and, if so, would per capita application rate be higher or lower if no modern pesticides were available in the market?

The important outcomes of the discussion about risk-related statistics were:

- The data is neither clean nor accurate. What is meant by pesticides and does the data include ornamental and home care applications?
- What is important is not the data, but how the data is interpreted. Without a doubt the ability of interpreting data correctly is the key, but no one seems to agree as to who can correctly interpret the data.

The latter point perhaps best capsulized the entire workshop. The paradox is that most people agree that data interpretation is most important, but no consensus is apparent as to who or whom is best equipped to interpret the data. No one entity or individual seems to be devoid of a bias when interpreting the data. Therefore, the interpretation of risk in/on fresh produce is at best related to the perspective of the interpreter and at worst guided by the interpretive position to defend or justify.

A presentation/discussion defining risk and various ways of perceiving and communicating risk followed. After giving the barest definition of risk as the chance of something negative occurring, risk was discussed as something which may be viewed from a variety of perspectives, comes in many forms

ANNUAL RISK OF DYING
(number of people out of 1,000,000)

BASIC RISKS

SPECIAL RISKS

Age 45-54, all risks

5840

3000

Cigarette smoker (one pack per day, lung cancer and heart disease); amateur pilot

2500

Age 35-44, all risks

2290

2000

Parachutist

1840

All cancers

1500

Age 25-34, all risks

1370

1200

Cigarette smoker (one pack per day, lung cancer risk only)

1000

800

Fire fighter; hang glider

600

Mountaineer

500

Digestive organ cancer; respiratory cancer

320

Breast cancer (women only)

220

Motor vehicle accidents; police officer

100

Home accidents; suicide; homicide

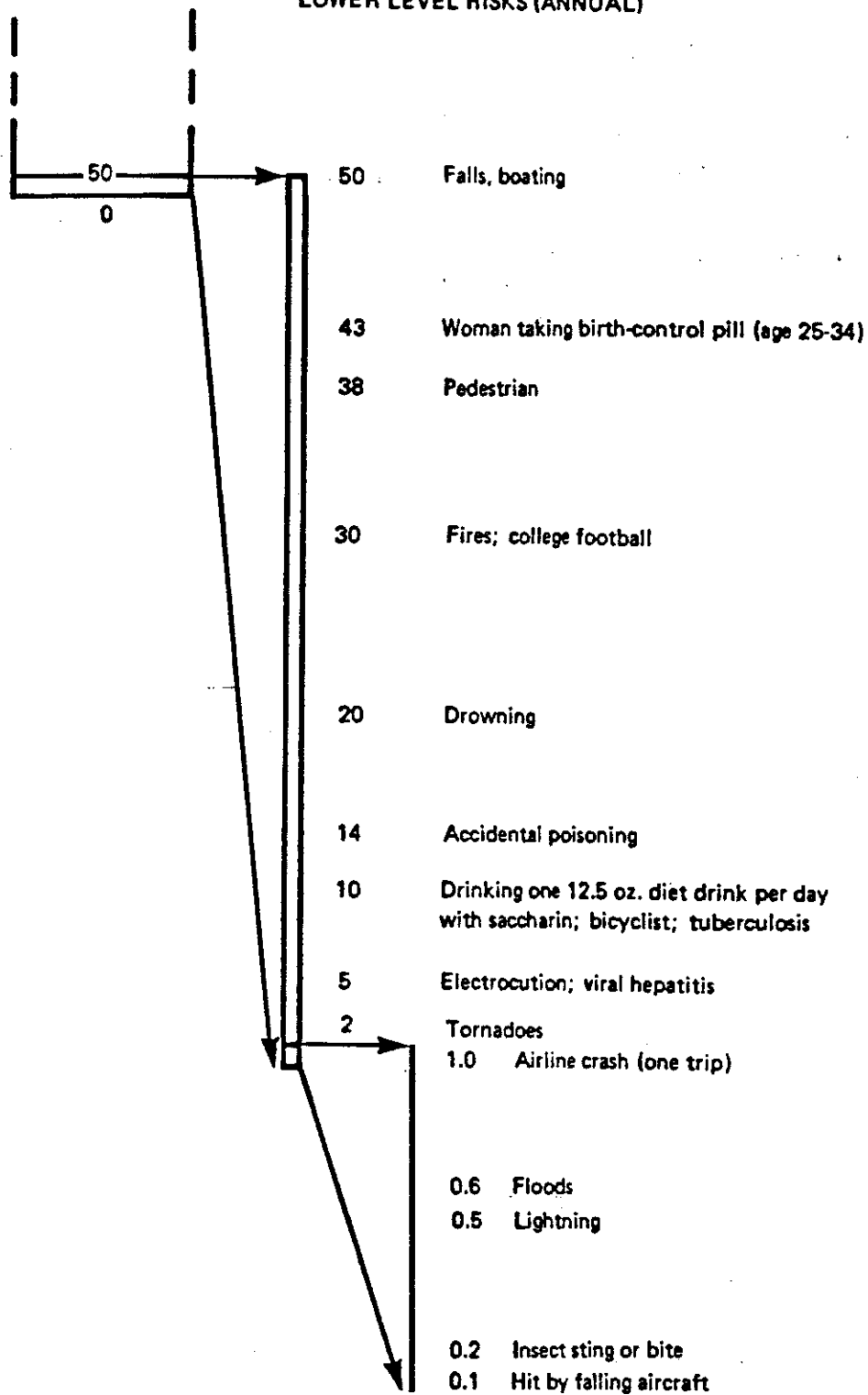
50

Falls; boating

0

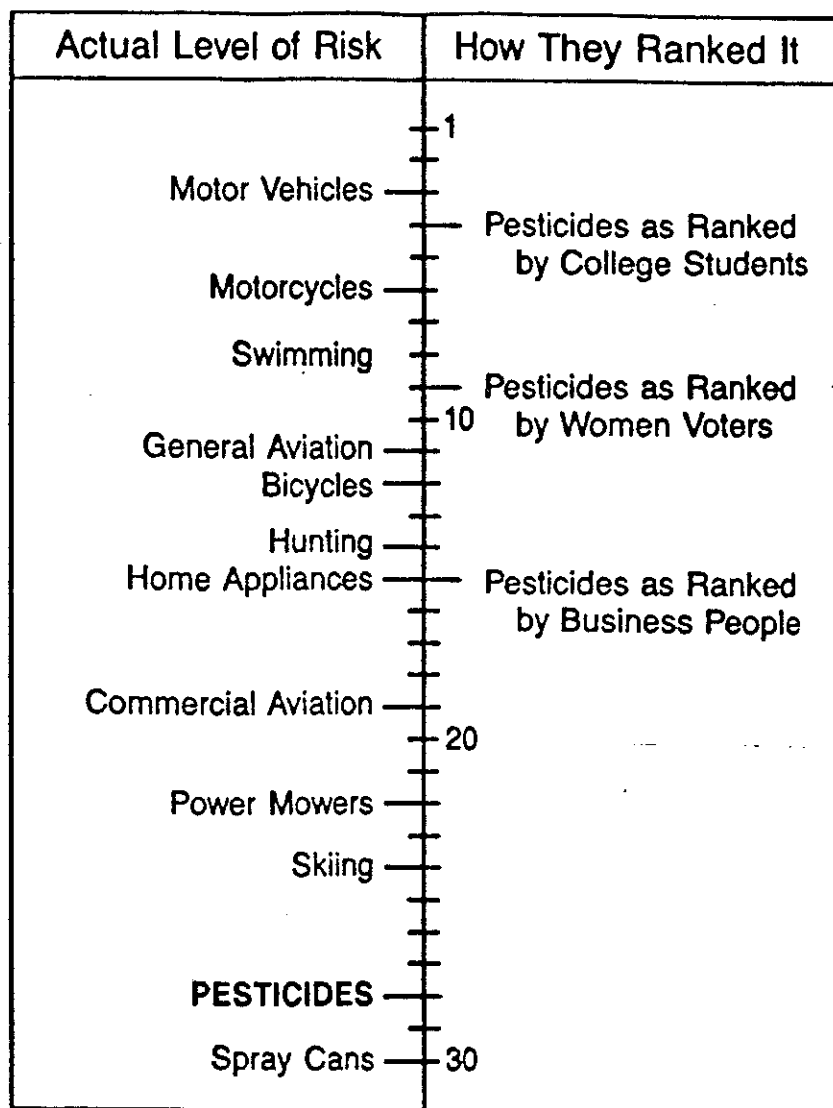
Figure 1 continued

LOWER LEVEL RISKS (ANNUAL)



Source: Estimating Consumer Willingness to Pay to Reduce Food-Born, Hammit, J.K. 1986, USEPA Rand Corp.

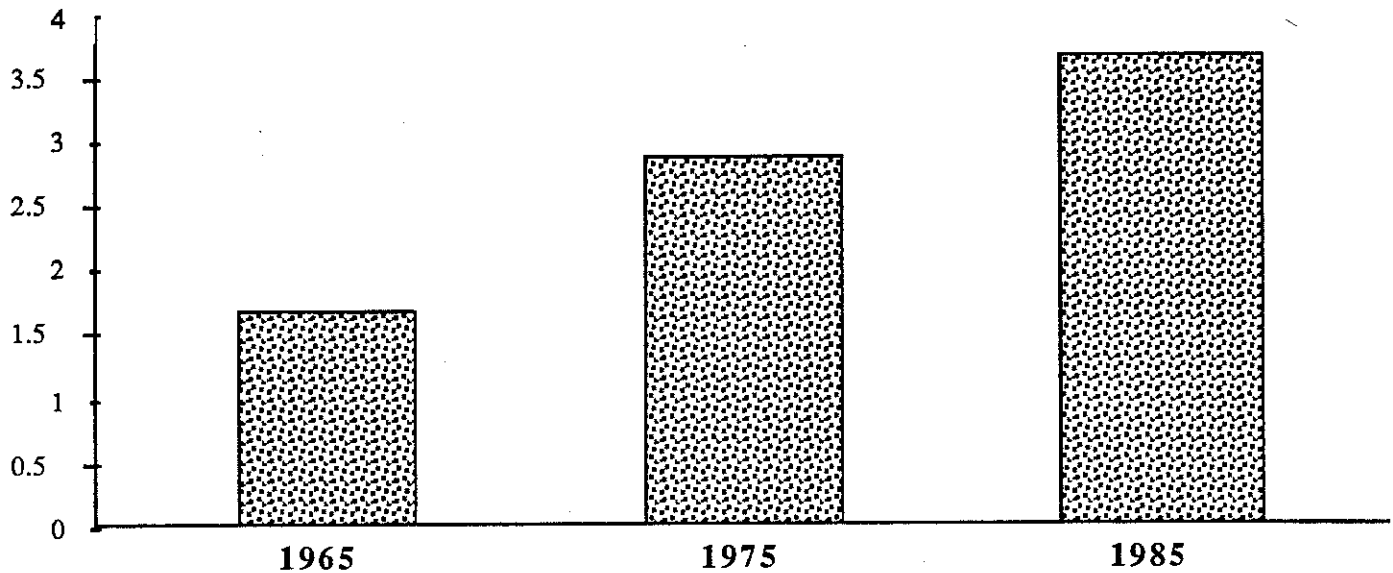
Figure 2



from: Health Issues Related to Chemicals in the Environment:
A Scientific Perspective, Council for Agricultural Science
and Technology, May 1987.

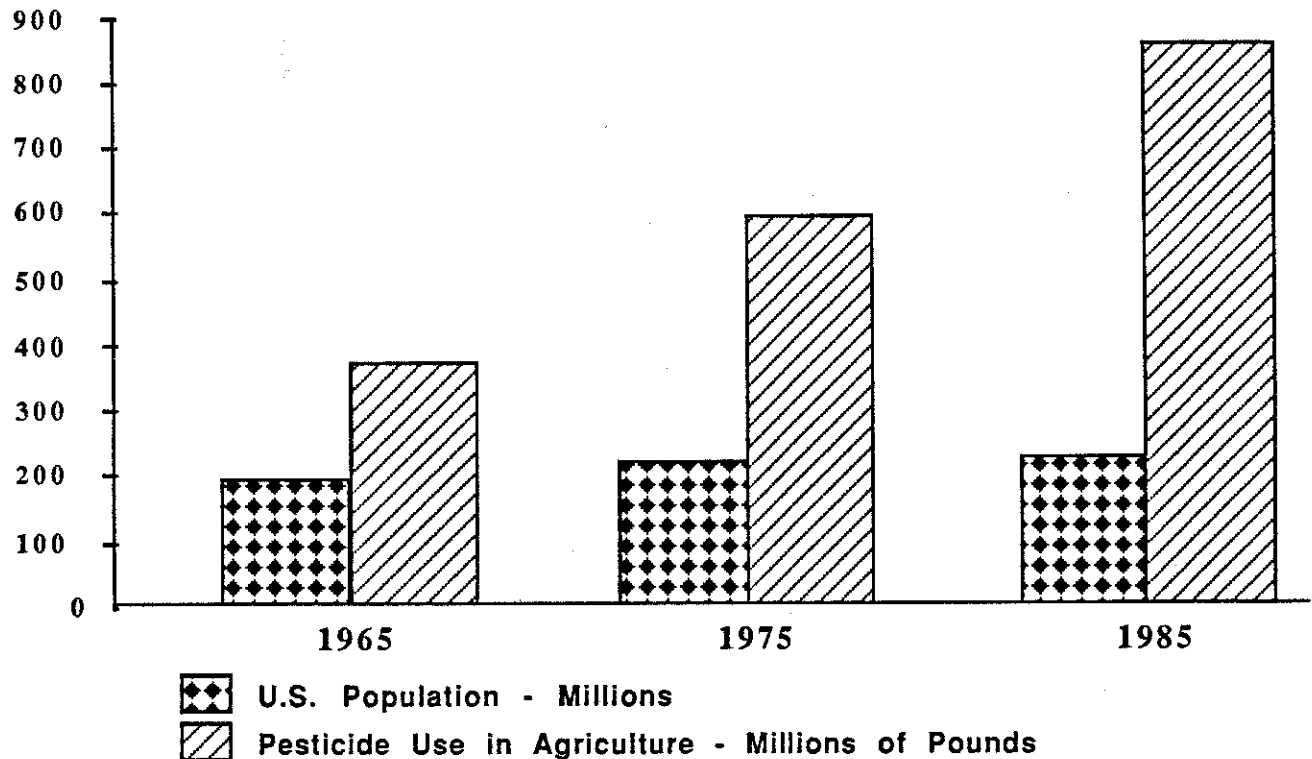
Figure 3

Per Capita Use of Ag Pesticides



Source: U.S. Department of Commerce, Bureau of the Census, Projections of the Population of the U.S. by Age, Sex, and Race, Various Issues.

Ag Pesticide Use in the U.S.--1965-1985



Source: E.P.A. Pesticide Industry Sales and Usage: 1987 Market Estimates, November 1988.

and causes numerous results. Table 1 was used to present important factors in risk perceptions which need to be kept in mind when presenting information to the public. These various factors interact in assorted ways to sometimes give unpredictable results. Not all individuals will react identically to the same constellation of factors. A risk that gives an individual little control or choice, affects a few, is familiar, distributes risks unequally, is scientifically well understood and cannot be seen, smelled, or felt can provoke very different reactions.

The important outcomes of the discussion about risk perception were:

- **Individuals who believe the risk of adverse effect is great need answers to their immediate concerns. These individuals must be responded to in a manner which conveys respect of their opinion and a desire to answer their anxieties.**
- **Discussion about the non-quantifiable nature of this material also was considered. Being unable to respond in the same manner to each circumstance increases the difficulty of risk communication, but does not reduce it to an impossibility.**

A one sheet outline (Appendix 3) was utilized for directing the lunch discussion. Participants were assigned seating so to maximize the variety of perspectives, but it was hoped the discourse would follow the cordiality of sharing lunch. Most importantly, the lunch table groups were asked to be prepared during the afternoon discussion to answer the questions presented in the one page outline. The questions on the sheet were geared for fomenting a plan for improving risk communication. As seen from the sheet, the first question addressed "Goals", followed by "Endpoints", "Paths/Strategies", "Leaders", "Coalitions", and "Barriers". It was expected that focusing the afternoon discussion on this sequential thought process would lead to a plan which the group would consider formulating or pursuing.

Unfortunately, this was perhaps the weak outcome of the workshop. The lunch groups became more interested in discussing how they viewed the issue, but more importantly participants were interested in talking with individuals with whom they normally would not have such a discourse. Addressing the questions on the sheet became an afterthought after finishing coffee. This is not to say that the afternoon section of the workshop was not valuable, but it was not as structured as one would have liked.

V. WORKSHOP DISCUSSION: FRAMING THE ISSUE

Public concern about the risk of eating produce with pesticide residues is composed of many perceived problems. The recent public concern about Alar on apples was a common experience for workshop participants and focused the discussion on a concrete example. Although Alar is but one

TABLE 1
IMPORTANT RISK PERCEPTION FACTORS
FOR RESPONDING TO COMMUNITY CONCERNS

FACTOR	CONCERN	
	MORE	LESS
CONTROL & CHOICE	LITTLE OR NO	SOME OR MUCH
CATASTROPHIC	EFFECTS MANY	EFFECTS FEW
DREAD	NO KNOWN CURE KNOWN VICTIM LONG-TERM ILLNESS CHILDREN	KNOWN CURE UNKNOWN VICTIM DEATH ADULTS
FAMILIARITY	NEW OR UNFAMILIAR	FAMILIAR
SCIENTIFIC KNOWLEDGE	LITTLE KNOWLEDGE RISKS STATISTICAL	MUCH KNOWLEDGE CONCRETE RISKS
EQUITY/BENEFITS	NOT EQUALLY SHARED \$ MADE FROM ITS USE	RISK/BENEFITS ARE SHARED
SENSES	CAN DETECT	CAN'T DETECT

example of a risk communication issue related to produce, the pre-workshop questionnaire response and the group discussions all occurred in the context of this recent concern.

All participants agreed that communications about the risks associated with pesticide residues are complex, fraught with stress and controversy, and need to be addressed. Some individuals focused on problems with short-term solutions while others concentrated on problems for which responses will entail time. Problems seen were as varied as the time scales and included: 1) trust, credibility, and power; 2) science; 3) education and public information; and 4) political issues.

A number of common themes, concerns, and philosophical differences among participants pervaded the discussion of these problems. Among these were the vastness of the issue, defining the public, the interactions between groups, feelings of helplessness, and the lack of single public voice. The following sections will report on the workshop discussion of the four problems.

V.A. Trust, Credibility and Control

The dynamics which a risk communicator faces when presenting information to the public are shaped largely by the predispositions and prior experiences of the audience. If the communicator is viewed as trustworthy and credible, the information presented will be more willingly accepted as being accurate. When the audience perceives little control or power over the situation, less trust will prevail. Other factors influencing trust and credibility include accessibility to those responsible for the final decision, ability to contribute to the final decision, rapid disclosure of information along with the uncertainties accompanying it, and presentation of information in comprehensible language.

The discussion of who the public perceives as trustworthy and credible became very intertwined with the topics of power and control. One layperson's definition of a trustworthy and credible source of information offered was individuals and organizations who: put the public's interests above those of industry or the government; are interested in the public's opinions and concerns; and are accessible.

If individuals believe they have some ability to influence outcome, the trust bestowed on those making the decision will be greater than if there is little sense of control over the results. Greed and economic benefit were mentioned by some participants as barriers to public trust. It was maintained that consumers want to know who make the decisions that affect their lives and how those decisions are made. If another party benefits from a risk imposed on an individual who has not been a part of that decision, a large degree of resentment and lack of trust occurs.

Some debate occurred concerning how much the public wishes to be involved in the decisions about food safety. Several participants argued that what people want is to know that someone is taking care of the situation. Others mentioned the public's desire to participate in the decision-making process and that avenues should be opened up to accommodate this desire. Some felt that this opportunity existed when shoppers decide what to purchase at the supermarket. Disagreement was voiced by participants who noted that the retailer decides relative positioning of products and what will be available.

The public often perceives scientists differently depending upon their employer. Scientific information from a commercial source is less trustworthy than information from a university. Government scientists may not be seen as more credible than industry scientists. The objectivity of scientists associated with universities is questioned less because they are not seen as controlled by the profit motive. However, university affiliated scientists may not be perceived as trustworthy if they receive or are perceived to receive funding from industry. Government scientists often are viewed with skepticism because the public perceives them as being too influenced by industry.

Some individuals mentioned public distrust of scientific information because scientific findings seem to change constantly. At one time a product is thought to be safe but later it is not. Public distrust of government officials also results from the delay between the discovery of a substance's questionable safety and its removal from the market. Many individuals mentioned the need for the public to believe that government will respond quickly to a newly found health concern rather than ignoring or downplaying the problem because an industry's economic interest comes before the public's health. Along with cynicism about for whom the government works, skepticism was also expressed about the adequacy of governmental testing of our food supply. Not enough money nor people are assigned to this task to give sufficient information about food safety.

Some discussion transpired about the increased level of trust that results when consumers can have questions answered by someone they know -- whether this is the retailer or producer.

The lack of trust resulting from a difference between public perception of the meaning of a word and the legal definition of that same word was mentioned. Specifically cited were legal definitions of "organic." Concern was voiced about how the public will respond to discovering various legal definitions exist even though most consumers believe organic means that no pesticides are used to grow or process that food item.

While most of the discussion was focused around produce, occasionally important ideas were explained using other food items as examples. Food producers are seen as greedy and non-trustworthy when they respond to consumer desires in a misleading way. Produce growers and distributors were encouraged not to engage in this type of consumer mis-education. Much discussion focused around the need, when appropriate, to increase the consumer's awareness of the benefits that may accrue from a particular process which is perceived as risky. Risk sharing needs to be associated with benefit sharing whenever possible.

A suggestion was made by several individuals concerning how to increase trust. Communication is a two-way process. Viewing risk communication as a one-way process decreases the likelihood that consumers will trust any decision. Those communicating information to the public must remember to listen and incorporate feedback from the public. The public has as much to offer to the process as do the scientists, risk assessors and communicators, retailers, and growers. A forum to determine how to go about this was recommended.

V.B. Science

Science presents a problem to those trying to communicate about risk, in different ways, to the public. Information concerning a particular chemical may not exist or may be incomplete. Scientists may not all speak with the same voice; differences of opinion among experts are common. Many times controversy may surround the interpretation of study results. Not only does the existence of controversy confuse individuals attempting to advise the general population on the existence or absence of risk but it also allows for the polarization of the issue reducing the possibility of resolving the issue with a minimum level of confrontation.

Science was seen as a problem and a solution to public perception of risk from pesticides residues in produce. The participants disagreed about what was a problem and what may be a solution with one individual mentioning the same idea under solution while another perceived it as part of the problem. A typical example of this was the opinion expressed by some individuals that only scientists, because they are experts, should make decisions concerning the level of risk resulting from a chemical exposure. Other participants stated that the overwhelming role that scientists currently play in the process is part of the problem and an improvement could be made by including more consumers in the decision-making process. Some of those who were willing to allow that scientists would not play a major role in policy making felt this would be acceptable if appropriate information to make a rational judgement was available!

Scientists were mentioned as a problem in the risk perception process because of their general lack of communication skills. Several participants voiced the opinion that scientists have difficulty expressing their knowledge in language understandable to the general public. Mention was also made about the seeming inability for some scientists to communicate with each other. It was stated that it may be necessary for scientists to convey information to each other before they will ever be able to be successfully transmit information to the public.

The information available to individuals was a topic of considerable discussion. Some participants felt there was insufficient data for informed decisions to be made while others did not necessarily disagree that all needed information existed but believed it was essential to supply the information currently available to consumers so they could make decisions. Others felt that too much information existed and the public is not sure what to think because much of the information is conflicting. Many expressed frustration at the lack of data and at the difficulty of gaining access to much of the existing information.

Lack of research money to answer the questions that both scientists and the public have concerning agricultural chemicals was mentioned as a pressing problem. Other participants wondered if a sufficient amount of money could ever be found to answer the questions about chemicals used on produce or if there might even be more compelling problems demanding those resources.

Science was offered as a solution to our problem of public mistrust of pesticides. More careful use of pesticides and biological agents were seen as contributions science could make to the solutions.

Biotechnology was also offered as a solution because this technology will replace many of the chemical products used today. An opposing opinion questioned how we would communicate the risk associated with biotechnology to the public. Some participants believed the problem of risk communication would mushroom with biotechnology as a solution. Other topics where science was felt to be a potential source of help in addressing the concerns of risk were improved sampling procedures and more universally accepted analytical methods. The lack of agreement about risk assessment methodologies was mentioned as an area where much improvement was needed.

V.C. Education, Public Information and Media

Education, both for adults and school-age children, and public information through the media were seen as both problems and solutions to improved communication about risks associated with pesticide residues on produce. The public needs increased abilities to understand and evaluate scientific and risk information and to apply it in personal and community decisions. A long-term strategy is to increasing the public's comprehension of scientific information and ability to evaluate risk situations is through educational programs for school age children. Some participants felt this approach was the only solution. Improved science curricula that include a focus on evaluating risk situations and risk information could be developed.

A shorter term strategy is to educate most of society's adults about this topic but the avenues for such programs are limited compared to the size of the population. Some participants felt that reaching significant numbers of the adult population was a hopeless situation; others indicated that adults could and should be educated. When trying to present information to the population a major difficulty encountered is the multitude of "publics" which exist.

The media is a primary source for conveying information to adults because of its existing access to most of the population, but the media has limitations. Biased reporting was seen by many participants as a major problem. Some individuals felt that the media was irresponsible in its reporting and cited coverage of the Alar controversy as an example.

The need to get unbiased information to the public was seen as essential. A great deal of discussion ensued about how to do this. Several individuals stated that the media should not be blamed for the type of information presented. The media utilizes information they have access to and those interested in this issue need to become sources of information. Other participants described the media as an entity which is most interested in balance - two positions which are opposite - but not necessarily the truth. A controversy is more interesting to present than a situation where an issue is presented with no strong opinions. Thus, scientists may not be interesting to quote unless they are willing to take strong unbalanced positions - as advocates for particular points of view.

Some segments of the adult population are reached successfully through educational and public information programs of organizations and groups such as retailers, producers, and Cooperative Extension. The need to improve the ability of persons in these organizations to address risk issues was emphasized.

Problems mentioned which educational efforts need to address included chemophobia, expectation of zero risk, fear of change, and lack of skill to perform reasonable risk assessments. Specific solutions were offered including the belief that adults need to understand that in a balanced diet the risk from any one source of pesticide residues is too small to be concerned about. Several individuals felt that we need to educate consumers to what is being done to reduce pesticide use in conventional agriculture and 95-98% of consumers would be happy. A problem was also noted about the confusion between actuarial risks situations where people have been known to die - and statistical risks - where we do not have actual deaths but are projecting what is possible. Some participants stated that risk perception is not seen as a function of one death per million people exposed but as a more personal concern for the individual and his or her family.

Several individuals felt that the consumer would understand the situation better if they understood agriculture better. Others believed that if people understood more about agriculture they would like it less. Several growers stated that they were at greater risk than the consuming public and if the public knew this they would trust the grower to not use chemicals which would cause harm. Several participants felt that the public did not understand the benefits received from pesticide use - cheap, available food. Mention was made about public demand for cosmetically perfect foods by some while others disagreed with this assessment stating that the public never participated in this decision.

Several individuals stated that the group seemed to be confusing communication and education with advertising. They felt that some of the suggestions under the heading education were actually advertising because the information to be presented contained a particular bias. As an example they mentioned the selective presentation of data to convince consumers of the correctness of a particular viewpoint. Those concerned about the confusion of education with advertising felt public concerns were not being addressed and until the public is included in the process there will continue to be difficulties. The example of this type of advertising given by one of the participants was the meat and egg advisory boards early advertisements attempting to increase consumer consumption of their products without addressing consumer concerns about cholesterol.

V.D. Political Issues

Public perception of risk is a political issue not only because people want and need control over their lives but also because the issue can be exploited for political gain by individuals and organizations. Not all who take a particular stand do so because of a personal belief or reasoned conclusion. These motives increase the difficulty of communicating with the public to help them make reasoned decisions about what affects them.

Workshop participants discussed the political nature of the issue with two different definitions of politics entering the discussion. The most prominent use of the word was to describe the interaction between the various groups interested in the topic. A general tone of helplessness, frustration and resignation about our ability to alter this situation permeated this discussion. The second definition of politics focused on the agencies charged with administering the laws concerning consumer exposure to pesticides in produce.

Many participants expressed the opinion that the issue is primarily a political battle between various interest groups, especially when it reaches the level of the Alar controversy. Motives for actions by various groups were discussed with much questioning of hidden agendas. Several specific examples were offered. Were agri-chemicals or current agricultural practices really the focus for the public interest groups speaking out on this topic? Or was the intent to change how the Environmental Protection Agency responds? Was the goal of public interest groups to increase its membership rather than an altruistic interest in public health and safety?

Discussion concerning how and who should make policy decisions occurred. Many individuals expressed a desire for the decision to be rational regardless of who made the final decision. The political nature of balancing risks and benefits in policy decisions was mentioned as a difficulty.

The slowness of the government to approve of new pesticides was voiced as a concern because we may run out of ways to control agricultural pests. Agency decisions concerning the type and number of produce samples to be taken were mentioned as also having political aspects.

V.E. Common Themes and Philosophical Differences

Throughout the discussion a number of themes and concerns common to more than one problem were raised. First, risk communication is a vast issue even when considered just as it relates to pesticide residues on produce. The issue has multiple and interrelated dimensions including social, economic, environmental, biological, health, labor, regulatory, chemical, statistical, and/or toxicological perspectives. Furthermore, individuals may view the issue from very different angles and have very different opinions on each angle. For example, the proponents of a certain viewpoint may give some of the following reasons for their opposition to pesticides on produce: there is a direct health risk for adults and/or children; natural components of food are safer than non-natural chemicals; worker exposure should be eliminated and/or reduced; the small family farm is better for the country and uses fewer pesticides than does agribusiness; and use of pesticides is an environmentally destructive method of farming. Opposite or conflicting positions for each of these sentiments exist resulting in communication difficulties.

Second, communicating about risks associated with pesticide residues on produce involves technical terms and scientific data and assumptions that are difficult to explain and discuss. In addition the parties involved have values and biases that influence what they say and hear.

Third, group dynamics and the existence of personal "axes to grind" can easily enter into any controversy, and perceptions of risks from pesticide residues on produce is not an exception. Individuals and groups may believe that there may or may not be a risk based on beliefs and attitudes having nothing to do with the facts surrounding the actual risk of exposure and adverse outcome.

A few concerns came up in discussion but were not explored in great detail. Some of the participants expressed a feeling that there was not much that could be done but they would like to be able to respond to public concerns. They were very interested in finding out if others had found effective means of responding to public concerns about pesticides. Much of this helplessness came out of a feeling that sufficient information was not available to respond appropriately and even if the information existed would the consumer believe it. Another participant wondered why people's values were being discussed because nothing could be done about them and this would not improve risk communication.

Two types of single voices were mentioned. First, there was a single voice from the scientific community and other communicators of information for the public. The desirability of having this single voice was discussed extensively with some individuals believing this to be a goal we should try to achieve and others feeling that it would be impossible to attain consensus. Those who expressed interest in obtaining consensus thought it would be extremely helpful for the public to be able to make decisions if greater agreement existed among information from the scientific community, government and industry. Though supportive of a single voice many participants did not see any possibility of achieving a single voice because there are too many different ways to interpret data along with a variety of personal biases which would preclude a single interpretation.

The second type of single voice that was discussed was one that most of the discussants were presuming existed - just one "public". Several individuals mentioned that the participants were talking about the public as if it was a homogeneous group. There are many "publics"; some couldn't care less about this issue because they have other more pressing problems, others hoping that the government and experts are protecting them, while others not being sure that current laws are necessarily sufficient or maybe not completely enforced are very concerned about their health. We need to address that segment of the public which is concerned and wishes to participate in public policy making. The trick is to find the individuals and bring them into the process.

Another variation in public response that was addressed was what determines a rational decision. A decision can be irrational from an observer's point of view but completely rational from the viewpoint of the person making the decision. The observer may have a different set of experiences upon which decisions are based.

VI. WORKSHOP DISCUSSION: HOW AND WHO TO RESPOND

Several divergent points of view came out of the workshop discussions concerning how to respond to public concern about pesticides residues on produce. Many individuals expressed interest in

improving the content of the message communicated to the consumer. More and improved data, better explanations of risk, and greater understanding of the agricultural system were the primary focus. A small group of individuals stressed the importance of trust. If consumers do not believe those who are responsible for food safety are doing their job then it does not matter how good the science is or what information is communicated. Several suggestions were made to improve trust levels. These included listening to what the consumer says, consumer participation in the decision making process, increased access to individuals who would respond to consumer complaints and concerns, and immediate response by public agencies when a problem surfaces.

Who would respond to the consumer and have the primary responsibility for communicating information generated much debate. Various groups, including cooperative extension, universities, governmental agencies (local, state and federal), retailers, agricultural interests, physicians, and not-for-profit organizations (in the form of a central information clearinghouse) were all mentioned as the important responder to public concern.

Cooperative Extension and members of the university community were discussed as potential leaders. Some participants stated that they believed that these individuals would be ideal leaders because they were seen as the least biased by the consumer. Objective information could be assembled and disseminated most effectively by these institutions.

Various agencies and different levels of government were discussed for possibilities of leadership. Several participants voiced the opinion that leadership comes at all levels and we should not restrict our thinking to federal agencies or even those with formal responsibility for this issue.

Some mention was made of the role of retailers and the agricultural industry. Retailers were thought to have a significant role in communication because of their continuous access to the consumer. Discussion centered around possible ways to improve the information produce managers and workers have to distribute to the public. The potential for trust was thought to be an important factor here. The agricultural industry, especially the agri-chemical portion, was felt to have a role in supplying existing data. Concern was expressed about the lack of openness and seeming unwillingness to release health data on the chemicals being used for pest control.

A final suggestion was the formation of a not-for-profit organization which would serve as an information clearinghouse on health and environmental data for various agri-chemicals. Much concern was expressed about the need for those who are responding to questions raised by the public to have quick, easy access to the most recent information.

Time was devoted to the barriers which may interfere with successfully handling public concerns. Repeatedly the complexity of the issue was brought up as a difficulty. Not only is the public confused about what to believe and how to respond to the information about pesticide residue on produce but those who need to supply the consumer with information are also overwhelmed with the many disciplines this issue crosses and the multiple opinions of those who are considered experts in each of the disciplines.

Lack of time was mentioned as a barrier to this problem also. Those who are trying to communicate with the public do not have the time to sift through all the data, interpret it, and translate into understandable language. This is especially a problem when faced with a crisis such as Alar. The consumer also lacks time to be able to learn a sufficient amount of information about every topic where a decision needs to be made. Several discussants felt that what the consumer wanted was to be assured that someone else was making certain that the food supply was safe so they need not worry about it.

Money for research, assembling data generated and public education was discussed as a barrier to improving the situation - at least in the near future.

Variations in points of view, based upon differing expertise, experiences, and perspectives was mentioned as a barrier to ending all controversy about pesticide residues. Some individuals believed that this issue was only a small piece of a larger concern about human environmental impacts.

VII. POSTWORKSHOP EVALUATION

A short questionnaire asking participants to evaluate the workshop was mailed 3-4 weeks after the workshops. Twenty seven of the 44 workshop participants (12 of 22 from Rochester and 15 of 22 from Albany) returned the postworkshop evaluation. The responses to each question were collated with the individual responses printed verbatim but anonymously. A copy of the summary is included in Appendix 4 along with the evaluation form.

The responses to the postworkshop evaluation indicated that of those responding, 96% found the workshop to be valuable. Eighty-nine percent of the respondents felt that the views present at the workshop fairly well represented those who are concerned about the issue. Of the 24% who stated that there were under-represented groups the majority stated that the consumer was not as well represented as other interests groups. The second most mentioned groups was 'anti-pesticide people' and third were regulators and media representatives. The criticism concerning consumer(s)/advocates was seen by the authors as fair. A variety of contacts were made to include more individuals from this area but those contacted, though very interested, could not attend.

The authors were interested in determining the success of the workshop format in facilitating free and open discussion. Fifty-four percent of the respondents felt very free to speak up; 45% felt relatively free and only 1% did not feel it was easy to speak up during the discussion.

Two questions were asked of the workshop participants about their positive and negative reactions to the workshop. Most of the participants mentioned the diversity of people as a positive aspect of the meeting; hearing viewpoints not normally heard broadened perspective. Others stated they appreciated having a variety of experts in attendance; having their perspective challenged and thinking about the problem from a new angle; and obtaining a greater understanding of the workings of Cornell and its potential to play a leadership role in resolving the problem.

The most mentioned negative aspect of the workshop was the lack of any concrete plan to address the issue in the future. Others felt that there was too much Cornell presence; the format was seen as repetitive; and unwillingness on the part of some to believe it is possible to initiate change.

The evaluation asked participants to indicate, from 7 choices, what they thought were the most important needs in communicating about risks from pesticides residues on produce. The most mentioned was understanding the public perceptions with improving the credibility of messages ranking second. The third most mentioned item was explaining judgement inherent in scientific method. The remaining choices offered -- getting more facts, simplifying the message, speaking with one voice, and targeting messages to audiences were not ranked high.

The final question requested additional comments about the workshop or the topic of risk assessment. Several individuals mentioned the need to recognize this as not only a scientific issue but also a social one. Facts will only be so useful; it is how we work with the information -- presenting it to and interacting with the public -- that determines our success. We need to keep in mind that those who gather the facts, disseminate the information or receive it are all doing so with a certain bias. An interest was stated by some that the group should be called together again in the future to do additional work on the issue -- possibly exploring more concrete directions to be taken. One felt a greater emphasis should be placed on learning why some individuals or organizations disseminated 'misinformation' promoting public concern while another stated that we cannot assume there is no risk from pesticide residue exposure and that the workshop had an agri-business bias.

Overall the workshop evaluations indicated the two meetings were successful. The semi-structured format was productive for facilitating discussion but may not have been as effective in giving the participants a sense of accomplishment at the end of the day (i.e. concrete outcome may have been useful).

VIII. CONCLUSIONS

1. This project confirmed that communicating about the risks associated with pesticides residues on produce is a very complex issue, the problems of which are defined differently by the different individuals and sectors involved. An interdisciplinary approach that enables those participating to understand these different perspectives is required to improve the risk communication process, but such an approach will be time-consuming.

The complexity of the risk communication process related to pesticide residues on produce was even more apparent after the completion of the workshops than it was at the initiation of the project. The interdisciplinary approach made it difficult for the participants to arrive at a consensus or concrete suggestions for future directions in the time allotted. However, much progress was made in the workshops toward increasing the investigators' and the participants' awareness of alternative views.

All of the workshop participants had recommendations about how to respond to consumers' perceptions of risk from pesticide residues on produce. Presumably a set of recommended strategies would have been easier to develop without so many diverse perspectives present. However, the investigators believe success of any one set of recommended strategies without consideration of other views of the issue would be limited. Thus, the investigators conclude that though slow, an interdisciplinary approach to developing solutions will have a better chance of eventual success.

2. The workshop discussions emphasized that trust, credibility, and control are very important issues related to risk communication about pesticide residues on produce and need to be addressed. Other important issues relate to science; education, public information and media; and politics.

The importance of trust, control and credibility are noted in the general risk communication literature but how these issues operationalize themselves in food safety issues was not discussed in great detail. More often the difficulties in communicating about food safety risks have stressed the lack of information and education on the part of the public.

In discussing trust, credibility and control, the workshop participants noted that it is primarily the consumer who is distrustful of other participants in produce production/distribution and risk communication. They lack confidence in producers to use pesticides properly, governments to regulate their use, and science to explain the health consequences of exposure. This lack of confidence translates into different risk communication postures depending upon where you are in the fresh produce market chain.

3. Future projects directed toward improving the risk communication process using an interdisciplinary approach should increase opportunities for the participants to develop concrete suggestions on how to better respond to public perceptions of the risks from pesticide residues on produce.

The investigators believe that the workshop format used in this project was successful in increasing awareness of varying viewpoints of the issues. However, the workshop format was much less successful in enabling the participants to develop strategies for improving response to the public's concerns. Some participants expressed frustration in the post-workshop evaluations with the lack of concrete progress.

In addition to expanding the workshop to a longer session or to a two-session gathering, the workshop agenda should be revised to eliminate the lunch small group meetings to prepare for the afternoon discussion. Instead of outlining question to focus the later discussion, each participant would be assigned a role to play for the after lunch portion of the session. This assigned role would be a position

opposite from the role the individuals holds in their job or community position. Not only would this "role-reversal" increase each individual's appreciation of alternative points of view but it could also improve the possibility of the participants proposing suggestions for how to respond to the perception of risk as a result of their focusing on the issue from an entirely different perspective. This change could leave the participants with a broadened view of the issue, a potential for later devising plans of action based upon playing a role with a perspective not previously appreciated, and possibly a set of ideas the group developed to implement.

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APPENDIX 1

SURVEY QUESTIONNAIRE:

COMMUNICATING ABOUT RISKS FROM PESTICIDE RESIDUES ON PRODUCE

Background Information from Workshop Participants

We would like to collect some background information from the individuals who will be participating in our workshop so that we can plan a productive discussion. Would you please take a few minutes to answer the following questions?

Please return to Sharon Van De Mark, 309 MVR Hall, Cornell University, Ithaca, NY 14853, by April 20, 1989 so that we can send you a summary of responses prior to the workshop.

1. Please indicate how you would like to be listed on our list of participants.

Name: _____

Organization: _____

Position/Title: _____

Brief description of your position: _____

The following questions address issues which have been raised by workshop organizers. We want to share your responses with the other participants who will be attending the workshop to give everyone an idea of the breadth of opinions. Your written response will be reported anonymously. At this time we are interested in brief responses. If you need more space please attach additional sheets.

2. Does the concern about pesticide residues on produce manifest itself in your position (job)? How?

3. What, if any, is your role in disseminating information about this issue?

4. Why is the issue about pesticide residues so complex and controversial?

5. What are the major barriers to minimizing the complexity and controversy?

6. Will the controversy and interest concerning pesticide residues on produce be with us for some time or is it a passing concern? Why?
7. What is the likelihood of a negative health consequence resulting from the consumption of fresh produce in New York State today? Why or why not?
8. Who in New York State should be responsible for making fresh fruit and vegetables safe?
9. What is the role of the public perception of risk in this issue about pesticide residues on produce?
10. What should be the role of Cornell Cooperative Extension in addressing this issue?
11. What information would you find useful to help you address this issue?
12. Do you have any comments, suggestions or request related to the upcoming workshop?

Thank you for your response!

APPENDIX 2

WORKSHOP AGENDA:

LIST OF WORKSHOP HANDOUTS:

COMMUNICATION ABOUT RISKS FROM PESTICIDE RESIDUES ON PRODUCE

June 8, 1989 in Albany, NY

AGENDA

- 9:00 AM Registration and Coffee
- 9:30 Welcome and Introductions
- o Moderators: Carole A. Bisogni, Enrique E. Figueroa and Nancy Ostiguy
 - o Invited participants
- 10:00 Setting the Stage
- o Goals of the workshop (remarks)
 - o Defining risk (remarks and discussion)
 - o Ways of looking at risk (remarks and discussion)
- 10:45 Framing the Problem(s) of Risk Communication about Pesticide Residues on Produce
- o Responses to pre-workshop questionnaire (remarks and discussion)
 - o Other dimensions to the problem (open discussion)
- 11:45 Reflections on Morning Session and Introduction to Afternoon Topic
- 12:00 PM LUNCH in assigned small groups
- o Discussion topic: Creating Solutions to the Problem(s) of Risk Communication About Pesticide Residue on Produce
 - o Vision, destinations and strategies
- 1:15 Developing Plans for Improving Risk Communication about Pesticide Residues on Produce
- o Reports from small group discussions
 - o Consensus, divergence and inconsistencies (remarks and discussion)
 - o Outlining proposed plans (open discussion)
- | | |
|-----------|------------|
| Goals | Leaders |
| Endpoints | Coalitions |
| Paths | Barriers |
- 3:15 Summarizing and Synthesizing Workshop Discussion
- o Priorities, practicalities and divergent views (discussion)
 - o Highlights and recommendations for report (remarks and discussion)
- 4:00 Adjourn

Sponsored by Cornell Cooperative Extension with support from ES-USDA.

COMMUNICATION ABOUT RISKS FROM PESTICIDE RESIDUES ON PRODUCE

June 21, 1989 in Rochester, NY

AGENDA

- 9:00 AM Registration and Coffee
- 9:30 Welcome and Introductions
- o Moderators: Carole A. Bisogni, Enrique E. Figueroa and Nancy Ostiguy
 - o Invited participants
- 10:00 Setting the Stage
- o Goals of the workshop (remarks)
 - o Defining risk (remarks and discussion)
 - o Ways of looking at risk (remarks and discussion)
- 10:45 Framing the Problem(s) of Risk Communication about Pesticide Residues on Produce
- o Responses to pre-workshop questionnaire (remarks and discussion)
 - o Other dimensions to the problem (open discussion)
- 11:45 Reflections on Morning Session and Introduction to Afternoon Topic
- 12:00 PM LUNCH in assigned small groups
- o Discussion topic: Creating Solutions to the Problem(s) of Risk Communication About Pesticide Residue on Produce
 - o Vision, destinations and strategies
- 1:15 Developing Plans for Improving Risk Communication about Pesticide Residues on Produce
- o Reports from small group discussions
 - o Consensus, divergence and inconsistencies (remarks and discussion)
 - o Outlining proposed plans (open discussion)
- | | |
|-----------|------------|
| Goals | Leaders |
| Endpoints | Coalitions |
| Paths | Barriers |
- 3:15 Summarizing and Synthesizing Workshop Discussion
- o Priorities, practicalities and divergent views (discussion)
 - o Highlights and recommendations for report (remarks and discussion)
- 4:00 Adjourn

Sponsored by Cornell Cooperative Extension with support from ES-USDA.

LIST OF WORKSHOP HANDOUTS

Agenda

Participant List

Bibliography

Preworkshop Questionnaire Summary

Pamphlet - FDA: Safeguarding America's Health

Pamphlet - A Consumer Guide to Food Quality and Safe Handling: Produce and Pesticides

Order form (same as above)

Residues of Agricultural Chemicals on Fruits and Vegetables: Pesticide Use and Regulatory Issues - DRAFT

Residues of Agricultural Chemicals on Fruit and Vegetables: Consumer Perceptions and Risk Communications - DRAFT

Groundwater Contamination: Working in Partnership with Community - DRAFT

Alar: Not Gone, Not Forgotten, Consumer Reports, May 1989

Residues in Foods - 1987, Food and Drug Administration Pesticide Program

Risk Communication, Risk Statistics, and Risk Comparisons: A Manual for Plant Managers

Chemical Risk Communication: Preparing for Community Food Safety: Here are the Facts

Safety First: Protecting America's Food Supply/An FDA Consumer Special Report

APPENDIX 3

LUCHEON OUTLINE:

COMMUNICATIONS ABOUT RISKS FROM PESTICIDE RESIDUES ON PRODUCE

Plan for Improving Risk Communication

GOAL (What is the specific goal for this plan?)

ENDPOINT (What is the desired endpoint? How will we know goal has been achieved?)

PATHS/STRATEGIES (What are possible strategies for achieving goal?)

LEADERS (Who are possible leaders for this plan?)

NETWORKS (What networks should be formed, if any? Who should be involved?)

BARRIERS (What obstacles, if any, must be addressed if this plan is to succeed? What are possible ways to overcome these barriers?)

APPENDIX 4

WORKSHOP EVALUATION AND RESULTS:

COMMUNICATING ABOUT RISKS FROM PESTICIDE RESIDUES ON PRODUCE

Workshop Evaluation

Your responses to the following questions will help us evaluate the workshop. Please return by July 31, 1989 in the enclosed envelope to Sharon Van De Mark, 335 MVR Hall, Cornell University, Ithaca, NY 14853. Thank you.

1. In which workshop did you participate?

ALBANY
12

ROCHESTER
15

2. What was your overall impression of the workshop?

1
not at all
worthwhile

2

3
somewhat
worthwhile

4

5
exceptionally
worthwhile

1

9

13

4

3. To what extent were the views represented balanced?

1
not at all
balanced

2

3
somewhat
balanced

4

5
exceptionally
well balanced

3

14

8

2

4. Were there any views that were under-represented?

NO

YES ----->

Which one(s)?

6

19

consumer advocates/consumers - 14
proponents of organic food - 4
non-university/industry scientists - 2
regulators - 2
media 2

5. To what extent did you feel free to speak up during the discussion?

1
did not
feel free

2

3
felt
somewhat free

4

5
felt
very free

1

5

6

13

6. Please write one or two sentences about the most positive aspect(s) of the workshop.

Albany

- o The diverse group provided a variety of views and response to suggestions made by participants. I learned more about the accounting (?) stance of the various section of the food industry.*
- o Differing views out in the open. Some new information.*
- o I felt it was most interesting to be in a group discussion on an issue where there are many views depending on one's background and experience. I think we all learned from each other's views and knowledge and were approaching a level of understanding and compromise.*
- o Opportunity to communicate with diversified people in agriculture.*
- o Good opportunity for divergent viewpoints to get together and understand each other's opinions, concerns, and viewpoints.*
- o People in attendance were experts in their field.*
- o A lot of the discussion focused on identifying different aspects of the problem - very important for such a complex problem. Also the sheets at lunchtime forced us to get specific.*
- o Contacts with members of Cornell & other parties interested in risk assessment of pesticides in foods.*
- o Allowed various viewpoints to be aired. Showed a number of needs (various channels and levels) for positive educational efforts.*
- o Well run! Good invitation list!*
- o Broadened my perspectives of the dimensions of the issue and allowed me to understand other points of view.*
- o Gave everyone a chance to share frustrations.*
- o Food safety is an issue and needs to be discussed. Current activities relating to tolerance setting and residue testing and food sampling need to be examined and evaluated. Are they adequate?*
- o Gave an interesting insight to the workings of Cornell University. It made it clear that Cornell could (and should) play a leadership role.*

Rochester

- o I appreciated the opportunity to make new acquaintances and do some networking.*
- o A very good representation of interested people were present. I made new contacts and sources of information.*

- o It was very helpful to hear viewpoints of others with whom one does not originally interact - it broadened my perspective, although I was a little troubled by the narrowness of some views. It's good to be aware that they exist!*
- o People were mixed, both for discussion and lunch, this was great because it prevented us from forming our normal groups.*
- o The cross section of people willing to take the time to discuss the issue. Many interesting ideas were put forth.*
- o All in all an excellent exchange of ideas/information. Interactions of this type (? diverse views) are paramount if we are to effectively address the issue of pesticides in food. Great job!! Hopefully this will not be the last.*
- o An excellent start. Allows us to think of the other persons' view.*
- o I thought it was a frank, open, and useful discussion. There was a good cross-section of individuals and viewpoints.*
- o Brought together people with similar concerns. Started people thinking about different ways of dealing with the same problem.*
- o It got several aspects of the food marketing industry together.*
- o Structure and direction to keep in focus. Assembling such a group of people; support and networking.*
- o Good, intelligent group. Very open discussions.*

7. Please write one or two sentences about the most negative aspect(s) of the workshop.

Albany

- o Took place on a legislative sessions day. Therefore we could not participate as fully as we might otherwise have wished.*
- o Did not really address the true concern of consumers - or the cause of these concerns. Did not pin-point an initial course of action for dealing with the issue.*
- o Overly long discussion about home gardens. Limited discussion of public misconceptions of risk assessments and cancer.*
- o No specific conclusions were made - still, there is no proaction being taken, because no one knows what to do!*
- o Not sure if the direction of the workshop. Not real sure what was accomplished, if we really wanted to accomplish anything.*
- o Structure of workshop not well defined. Should have had more information to participants prior to workshop as to agenda, statistics used, objectives.*
- o Very little was accomplished. Little new ground was broken. It seems there is a fear of stepping on various groups toes.*

- o I feel we were all anxious to do something ... take positive action ... after the workshop but unfortunately this was not part of the agenda so I am not sure what we accomplished. I am still in need better equipped to address public questions, I still see little assistance coming via the university in that regard. Growers are also being asked about pesticides and are not fully prepared to handle the questions.*
- o Too much Cornell presence which was parochial - no plans for follow-up; no consumer advocate group share dialogue.*
- o There were a lot of Cornell affiliations and this might have skewed the focus. Consumer (?) from state, or local level could have been included!*
- o Not enough time to really address the issue(s). No opportunity to focus or demand (administrative authority) the next step towards addressing the issue.*
- o The highly educated (in the subject matter) participants saw themselves as consumers and had trouble understanding the communication needs of "regular" (not informed on the subject) consumers.*
- o I at least failed to see a resolution to the basic problem.*

Rochester

- o No real answer. What next?*
- o Never enough time. Results not immediate (didn't expect to solve it but it's still disappointing)*
- o No specific direction to be taken as a result of the meeting. Possibly because there is no good answer or direction.*
- o Negative attitude on the part of some to consider doing anything different in order to alleviate the problem. No direct plan of action - unwillingness to commit to responsibility or possibility of initiating change.*
- o I don't believe I can find a negative aspect. I believe the session met the planned objectives.*
- o I'm not sure that any of this information gathered/exchanged/learned will leave a printed page on someone's desk, and sink its way into the retail purchasing situation.*
- o None.*
- o I am not confident that the workshop will have a positive effect on improving communication about pesticide risks.*
- o Agri-business concerns overpowered the discussion.*
- o I guess I thought the most negative aspect was the structure of the format - it seemed to be variations on the same theme rather than an opportunity to move forward and make some progress in thinking about effective risk communication strategies.*

- o I am anxious to hear the conclusions, and where we will go from here.*
 - o This isn't a negative comment but I'm not sure we accomplished what we were supposed to (what were we supposed to accomplish?) I felt the workshop was a good start - an introductory session - but that subsequent "roll-up-your-sleeves" sessions would be helpful.*
8. What do you think are the most important needs in communicating about risks from pesticide residues on produce? (Please circle up to three responses.)
- 9 a. getting more facts
 - 14 b. improving credibility of messages
 - 15 c. understanding public perceptions
 - 9 d. simplifying the message
 - 6 e. speaking with one voice
 - 11 f. explaining judgments inherent in scientific method
 - 8 g. targeting messages to audiences
9. Do you have any other comments about the workshop or about the topic of risk communication about pesticide residues that you forgot to mention or felt uncomfortable mentioning?

Albany

- o None that I could find in my notes.*
- o Need more identification of the roles of industry, government, farmers, etc.*
- o No.*
- o 1. Greater emphasis might have been placed on examining the sources of misinformation and their reasons for promoting public concern.*
- o 2. More information should have been presented to indicate that alternatives to pesticide residues frequently present greater risks to consumers and the environment. Some singular and objective body of information.*
- o Those who gather the facts, those who disseminate, and those who receive are all doing so with a certain bias (perception). This all must be factored into the communication process and there must be a continuing exchange - it's not up to us to tell them "the facts" but to set up a process by which information is shared.*
- o I felt that the questions were such that they assumed that we all agreed that there is not a risk and all that is needed is to inform the public. I felt that this was a definite agri-business start.*

- o I appreciated the opportunity to participate - I wish that follow sessions could be held every 12 months or so.*
- o Although I said it at the workshop I want to stress once more the need for simple, direct language.*

Rochester

- o I believe that a credible, reliable system must be put in place to educate consumers.*
- o Better work could be accomplished by this group of people if they were to be called together again to become a more cohesive group and to continue to work on the topic. Keep up the good work!*
- o My general comment was that people seemed overly concerned about getting 'facts' as if there were concerning the risks of the pesticides. The system should supply a constant stream of information to the consumer preferably at the point of purchase and through the media. The message should be designed so that it is readily understood by the targeted audience.*
- o a. We could have focused more on what growers/retailers can do to help allay fears visually - i.e. scrubbing produce, IPM, etc. I realize this was not the topic of the workshop, but it is at the retail level, day to day that we deal with the problem.*

b. Some of the "scientific" contributions tended to dominate the "layman" contributions. I personally feel it's not proper to say "science says" when dealing with social issues.
- o None.*
- o This issue will continue to be of concern to the public. It is important to demonstrate that there are real problems with pesticide use, while making efforts to insure a safer future for the food supply - and the environment. "The public" need to know we're all in this together.*

Thank you!

Other Agricultural Economics Extension Publications

No. 90-8	Dairy Farm Business Summary, Northern New York, 1989	Stuart F. Smith Linda D. Putnam
No. 90-9	Dairy Farm Business Summary, Western Plain Region, 1989	Stuart F. Smith Linda D. Putnam
No. 90-10	Dairy Farm Business Summary, Central New York and Central Plain Regions, 1989	Wayne A. Knoblauch Linda D. Putnam
No. 90-11	Dairy Farm Business Summary, Eastern Plateau Region, 1989	Robert A. Milligan Linda D. Putnam Carl A. Crispell William H. Gengenbach Gerald A. LeClar
No. 90-12	National and State Trends in Milk Production	Andrew Novakovic Kevin Jack Maura Keniston
No. 90-13	Dairy Farm Business Summary, Oneida-Mohawk Region, 1989	Eddy L. LaDue Mark E. Anibal Jacqueline M. Mierek
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No. 90-17	Present Value, Future Value and Amortization Formulas and Tables	Eddy L. LaDue
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No. 90-19	Dairy Farm Business Summary, Eastern New York Renter Summary, 1989	Linda D. Putnam Stuart F. Smith