PROCEEDINGS OF A WORKSHOP

FARMERS AND NEIGHBORS

LAND USE, PESTICIDES, & OTHER ISSUES

UC AGRICULTURAL ISSUES CENTER
FARMERS AND NEIGHBORS:
LAND USE, PESTICIDES AND OTHER ISSUES

Summary Report
of a Workshop
at the University of California, Davis
October 23, 1995

Ray Coppock
Marcia Kreith
editors

Agricultural Issues Center
University of California
AIC Publication No. NF-1
March 1996
For information about ordering this publication, contact

UC Agricultural Issues Center
University of California
Davis, CA 95616

Telephone (916) 752-2320
FAX (916) 752-5451

ISBN 1-885976-03-8

Printed in the United States of America.

©1996 by the Regents of the University of California
UC Agricultural Issues Center

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of the publisher and the authors.

Cover photo: Jack Kelly Clark
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Overview of the Problem</td>
<td>3</td>
</tr>
<tr>
<td>Pesticide Use and the Regulatory Framework</td>
<td>7</td>
</tr>
<tr>
<td>Discussion</td>
<td>13</td>
</tr>
<tr>
<td>The Agricultural Interface</td>
<td>15</td>
</tr>
<tr>
<td>Discussion</td>
<td>23</td>
</tr>
<tr>
<td>The Urban Interface</td>
<td>25</td>
</tr>
<tr>
<td>Discussion</td>
<td>32</td>
</tr>
<tr>
<td>Reducing the Conflict: Current Approaches</td>
<td>37</td>
</tr>
<tr>
<td>Discussion</td>
<td>46</td>
</tr>
<tr>
<td>Perspectives: Summary and Recommendations</td>
<td>51</td>
</tr>
<tr>
<td>Alvin D. Sokolow, Mary E. Handel and Harold O. Carter</td>
<td></td>
</tr>
<tr>
<td>Appendices</td>
<td>57</td>
</tr>
<tr>
<td>For Further Reading</td>
<td>59</td>
</tr>
<tr>
<td>Workshop Program</td>
<td>61</td>
</tr>
<tr>
<td>Speaker Biographies</td>
<td>65</td>
</tr>
<tr>
<td>Workshop Participants</td>
<td>69</td>
</tr>
</tbody>
</table>
PREFACE

In the spring of 1995, we were approached by Jack Pandol of California Environmental Protection Agency and Mike Chrisman of California Department of Food and Agriculture. They suggested that UC organize and conduct a special workshop to address conflicts and solutions in those controversy-prone parts of California where urban development lies next to commercial agriculture. Workshop participants were to include members of the Cal-EPA Department of Pesticide Regulation (DPR) Agricultural/Urban Interface Task Force and other key individuals with relevant expertise and experience.

It was agreed that the workshop should provide an interactive forum to:

- Identify and help define the components of the problem/conflict.
- Discuss ways to address the problem at state and local levels.
- Increase dialogue among interested parties.
- Provide a foundation to help the DPR Task Force focus on a direction for future activities.

Workshop topics considered to be important and which could be addressed by the organizers included (1) the pesticide regulatory context and constraints, (2) agricultural practices, (3) land use and farmland protection policies and (4) dispute resolution.

The all-day workshop, organized by the Agricultural Issues Center with financial support from Cal-EPA and CDFA, was held on October 23, 1995, in the Buehler Alumni and Visitors Center on the University of California campus at Davis. This report is one result.

Hal Carter
Al Sokolow

ACKNOWLEDGMENTS

Mary E. Handel, land use consultant, was contracted by the AIC to coordinate the entire project. In addition to editing, Marcia Kreith, AIC program analyst, was involved in and contributed to every phase of the project. In addition to editing, Ray Coppock, AIC media specialist, took the lead in scripting the introductory video based on "Conflict on the Urban Fringe" by Mary Handel. Mike Poe produced the videotape. Suzanne Paisley was responsible for the photography. John Woolcott prepared the report for print.
INTRODUCTION

On October 23, 1995, about 50 people with varying viewpoints but common concern about urban-edge issues in California met on the UC Davis campus. During a day-long workshop, they heard state and local officials, farmers and community activists describe their roles, aspects of the problem, and proposed solutions. Each presentation was followed by wide-ranging and sometimes intense discussion involving the audience and the speakers.

The tone of the conference is suggested by titles of each of its major sections:

Pesticide Use and the Regulatory Framework.
The Agricultural Interface.
The Urban Interface.
Reducing the Conflict: Current Approaches.

ANALYSIS OF THE ISSUES

Problems at the agricultural-urban interface are diverse and complex, although pesticides and pesticide use are clearly a central concern. Many of those who attended the conference had strongly held views about defining specific problems and suggesting solutions. Because specific issues were commonly mentioned by more than one person or at different times during the conference, they have been editorially summarized in the discussion reports. Each "issue" statement is followed by relevant responses from speakers or others.

Urban-edge problems in California are considered from various viewpoints in this report. An overall view, as described in an introductory video to the conference, is in the next chapter. Specific aspects are discussed by the speakers and by members of the audience in the following four chapters. The issues are summarized and recommendations made in the final chapter—a post-conference analysis by Alvin D. Sokolow, Mary E. Handel and Harold O. Carter.

SPEAKERS IDENTIFIED

Those who gave presentations at the conference or are otherwise quoted in this report are briefly identified in the text. For more details, see the speak-
ers' biographies and list of conference attendees in the appendices. A number of those who participated in the discussion sessions are not directly quoted because their principal points have been editorially combined into the "issues" statements. (Editors' apologies if any have been overlooked.)
OVERVIEW OF THE PROBLEM

This is the script for a video, "Farmers and Neighbors At the Edge," which was prepared as background for the conference. Information source: "Conflict on the Urban Fringe," by Mary E. Handel, land use consultant.

As we approach the 21st Century, a unique and historic relationship has developed between farmers and city people in California. This relationship is important because California is home to a very large and almost entirely urbanized population; and, at the same time, to a very large and highly industrialized agriculture.

Climate, soil and water resources, as well as technology and management systems, contribute to California's role as a world leader in diversified farm production. Agriculture is not only an economic mainstay for the state, it's a global resource. However, in numbers of people involved, there is an enormous imbalance between farms and cities in California. Almost one-third of the state's vast land area is in commercial agriculture—either cropland or rangeland—and yet not one out of a hundred Californians is a farmer or a rancher.

So a very large and diverse agricultural system in this state has to co-exist with an overwhelmingly urban population. But does this mean that tension between city people and farmers is inevitable? The answer is: Probably yes. There's certainly going to be urban-rural competition for scarce resources like water. Also, some farm irrigation runoff drains into city water supplies; and cities transport some of their solid wastes out to farmland. Damage from air pollution cuts both ways—smoke from agricultural burning bothers city people, and city-generated smog significantly lowers crop yields.

But we're concerned here with another set of problems: those located at the agricultural-urban boundary. These are the result of proximity. You can't locate that many people next door to that much cultivated cropland, or land where animals are raised, without inconveniencing somebody.

Underlying all this is a more subjective issue of values. Different people see the same orchard or the same field of tomatoes or the same cattle on pasture, and appreciate what they're looking at—but for different reasons.

There are ways of dealing with these potential conflicts. But before considering alternatives, let's look more closely at the issues involving urban and agricultural land uses in California. Where conflicts arise, what are the specific problems—and what are the factors that influence them?
The friction between farmers and their urban—or, more likely, suburban—neighbors most commonly appears in three kinds of locations:

- At the edge of a city, particularly where the boundary is unstable and continually moving outward.

- Farther out, where unincorporated rural neighborhoods are expanding with all those people who want to escape the city.

- And in farmland areas where alternative land uses have been allowed—for example, golf courses or schools.

Conditions like these that generate tension between farmers and their neighbors are found throughout California’s vast cropland and rangeland areas. The problems may be more widely recognized where population is concentrated, but they arise even in the most isolated rural counties—for example, around recreational developments.

What are the specific difficulties? Those that bother urban residents are generally recognized. What may be less widely appreciated is that farmers also have their list of complaints. Here are the most common issues:

**From the urban viewpoint:**

- Pesticide use, particularly drift.
- Noise (for example, tractors at night).
- Odor, particularly from livestock and food processors.
- Dust and smoke.
- Flies and other pests.
- Tractors and farm machinery on local roads.

**From the farmer's viewpoint:**

- Restraints on routine operations (for example, restrictions on use of pesticides or on the time of performing important cultural practices).
- Liability for trespassers.
- Theft, vandalism, litter.
- Damage from dogs.
- Pests—for example, weeds that spread from urban areas.
- Urban drivers on local roads.

However, simply listing the complaints doesn’t solve anything. The next question is: What kinds of situations are most likely to create these problems in the first place? The fundamental difficulty is that farmers and non-farm people are living or working next to each other. But beyond that, there are important factors that can make conflict either less or more likely.
Obviously, the kind of farming that's going on makes a difference. Livestock operations cause more complaints about flies and odors. Crops that use aerial spraying generate more complaints about pesticide drift and noise. The age of an orchard makes a difference, since spraying of large, old trees is more conspicuous than spraying of young ones. Even the direction the rows are planted could affect the number of complaints. Very often, it's differences like these that intensify conflict at the urban edge.

On the urban side of the boundary, there also are important differences between one locality and another. These generally have to do with the stability of the boundary—with how rapidly the city is growing as rural areas become bedroom communities.

One of the results of rapid growth is that new groups of farmers and urban residents are continually becoming involved with each other as the city boundary moves outward. But possibly more important is the fact that, very often, most of the new homeowners have never been around farms before. It's not that newcomers don't like the countryside. In the words of one observer: "They see blossoms and fields of mustard in the early spring and assume that this is what rural living is all about, but as summer approaches after they've moved into their new homes, the noise and the dust and smells drive them crazy." Meanwhile, people who have lived longer in the same community are more likely to think of nearby farms as the source of an occasional nuisance, but not really a serious problem.

All this points to one recurring issue that underlies the uneasy relationship between farmers and non-farmers—a conflict between two sets of legitimate and important values. For urban-oriented Californians (and for many local government officials and planners) the chief value of farmland is the open space that it provides. This includes not only its scenic value, but also its function as a buffer—for example, to separate city boundaries, or to isolate an airport.

So one important segment of California's population values farmland primarily because it provides open space and a rural atmosphere. This is demonstrated by the fact that, at least in some localities, a house next to farmland may sell for a higher price than the same house elsewhere.

But another important segment of the population values California farmland primarily for an entirely different reason: It's a vital economic resource supplying food and fiber to the world. The idea that agriculture is a business enterprise and not just open space certainly isn't new, but it's not always taken seriously by city dwellers—or by city and county government.

In the future, the success of agriculture in this state with its increasingly urban population may well depend on how effectively Californians acknowledge the dual character of farmland, both as open space and as a site for food and fiber production. Recognition of that fact by both sides is the key to better
planning and urban development in agricultural areas. While farmers continue to adjust their farming practices to accommodate their urban neighbors, other approaches to solving the problem include firmer urban growth boundaries and, where appropriate, use of buffer zones between agricultural and urban uses.

Meanwhile to encourage wider understanding of the dual character of farmland, more information and discussion involving both farmers and the urban public is needed.

We need to keep in mind that conflict between farmers and their urban neighbors in California reflects valid issues on both sides. Conflict also contributes to another problem—the continuing tendency toward short-range planning and unnecessary loss of farmland. And when that happens, we all lose.
PESTICIDE USE AND THE REGULATORY FRAMEWORK

Arthur L. Craigmill  
Extension Specialist  
Environmental Toxicology  
UC Davis

Although the "ag-urban" interface is a somewhat ill-defined boundary where residential properties and agricultural lands meet, the issues of controversy at this interface are readily listed. They relate primarily to "nuisances," including noise, dust, odors, air pollution and use of chemicals such as fertilizers and pesticides. Most commonly, these concerns are voiced by the urban or suburban population; however, it should be kept in mind that the agricultural population also has concerns—in particular, about trespassing, vandalism and air pollution. A focal point of recent concern has been the use of pesticides to protect crops growing at or near the boundary between residential and agricultural lands. Because this issue is so visible, we will address here pesticide usage and the regulations in California that govern it.

Michael W. Stimmann  
UC Statewide Pesticide Coordinator

A great many chemicals are used for pesticidal purposes. In fact, whether a chemical can be defined as a "pesticide" depends on the user—if the intent is to control a pest, it's a pesticide. Some chemicals used to control pests are extremely toxic to humans and/or the environment; others are harmless. (Although even table salt, which can be used as a pesticide, is toxic in large quantities.) Therefore in the debate over pesticide use it is important to carefully define the pesticides under discussion, including their toxicity.

In fact, the first problem in dealing with the side-effects of pesticide use is to determine the risk. This is because the logical goal is to reduce the risk of pesticides, not the use of pesticides as such. A crucial fact to keep in mind is that the degree of hazard depends on two things: toxicity and exposure. If these factors are known, risk can be accurately quantified. (However, actual exposures at the ag-urban interface are not well understood.)
We need pesticides. There are many examples, historical and current, of pest-transmitted diseases threatening human populations and of agricultural disasters caused by uncontrolled pests. The invasion of California by the Mediterranean fruit fly, the world’s worst agricultural pest, is one example.

Pesticide use on nearby farmland is a concern of urban residents at the ag-urban edge in California, including the potential for both acute illnesses, cumulative effects and delayed-onset illnesses. Of course, there are other concerns such as noise and dust. Agriculturists have their own set of concerns involving the ag-urban interface, including pest-related production problems and toxicological effects.

One proposed way to deal with the problem of pesticide use at the ag-urban interface is to simply regulate less use of pesticides—hopefully, aimed primarily at reducing risk—and depend on development of new technology to keep pests under control. Regulations are commonly used to drive technology; smog control devices are an example. However, it is crucial that the regulations (1) be feasible, (2) set goals, not methods, in order to permit innovation and (3) remain stable over time so research can be carried out effectively and so that pest management methods can remain in use for a reasonable length of time.

What are the proposed solutions to problems at the ag-urban interface? One is to eliminate friction at the interface by stopping development or creating buffer zones. Another is to eliminate pesticide use, and accept the consequences on our industrialized agriculture, including scarcer food and higher prices. Potential developments in pest management science, including integrated pest management, offer promising alternatives.

In any case, it is important to first quantify the risk of a particular pesticide use, and then make a societal choice of whether or not to accept that risk in return for the benefits.

Tobi Jones  
Special Assistant, California  
Department of Pesticide Regulation

Key elements in the regulatory framework for pesticide use in California are evaluating and registering pesticides, protecting workers and the public, environmental protection and pest management alternatives, and enforcing pesticide laws. Key state and local players in pesticide regulation include:

• The legislature, which sets policy direction through the legislative process and budget oversight.
• DPR, within Cal-EPA, which provides regulatory program management, including product registration.

• The Office of Environmental Health Hazard Assessment (OEHHA) in Cal-EPA.

• County agricultural commissioners.

• Local health officers.

PRODUCT REGISTRATION

Before a pesticide can be registered by DPR for use in California, it must be registered with the federal EPA. The federal and state registration process entails:

• Evaluation of a range of supporting data, including toxicology, environmental fate, ecological effects, product and residue chemistry, and product effectiveness. Data are reviewed to answer these questions: Are the studies scientifically sound? Is there potential for adverse health and environmental effects? Is the product effective as claimed?

• Review of the label, a critical document for both users and regulators, which should describe how to use the product safely and effectively. The label is reviewed to answer these questions: Are the directions clear? Are hazards and mitigation measures identified? Is the label enforceable? (Although enforcement staff would like to see all aspects of the label enforceable, in fact all of the information given is not enforceable. U.S.E.P.A. frequently allows the use of permissive language, and has moved toward the use of advisory language as guidance on produce usage.)

• Consultation with other state agencies whose areas of responsibility may be affected by pesticide use, including the California Department of Fish and Game, Department of Health Services, Air Resources Board and the State Water Quality Control Board. These agencies have an opportunity to review the data and labels, and advise DPR if they have concerns.

• Public notice weekly of all decisions regarding product registration. A 30-day comment period is provided on all proposed decisions to register or not register a product.

CONTINUING EVALUATION

DPR uses a number of mechanisms to continually evaluate products it has registered:
• Data call-ins on health effects and environmental fate of older products. DPR has a decade of collecting and assessing contemporary data on older pesticides.

• Standard risk assessment procedures to characterize the potential risks to human health from pesticide use, drawing on health effects and exposure data.

• A reevaluation process that allows DPR to reexamine products or active ingredients when problems are identified. Registrants are asked to develop additional data to assist the Department in assessing the problem, and determining what mitigation is needed or if cancellation is appropriate.

• Adverse effects disclosure, a requirement that registrants report to DPR any adverse effects that have been identified for their products.

• Field studies to monitor worker exposure and environmental fate. The Department conducts these studies and uses the data in risk assessments and in developing mitigation measures as needed.

• A feedback loop that uses the regulatory system to identify problems. The processes described above include a continuous look at new data on how pesticides behave. DPR also receives data from the field as products are used, to identify issues that need to be addressed.

**SIGNIFICANT LEGISLATION**

Over the past decade, several pieces of legislation have greatly influenced DPR's continuous evaluation of pesticides. These include:

• SB 950, the Birth Defect Prevention Act. This 1984 law required the Department to obtain complete health effects studies on all pesticide active ingredients registered in the state. It requires that DPR cancel pesticides that have significant adverse effects. This latter requirement caused the Department to more fully develop the risk characterization process.

• AB 2021, the Pesticide Contamination Prevention Act. This 1985 legislation required a number of activities to assess the potential of agricultural pesticides to contaminate groundwater. Collection of complete environmental chemistry data; establishment of numerical values to weigh leaching potential; and extensive groundwater monitoring are a few of the requirements. DPR has determined from these monitoring studies that only a small number of pesticides contaminate groundwater.
• AB 1807, Toxic Air Contaminants. This law required the Department to assess the risk of pesticides in ambient air. This is a collaborative effort among DPR, the Air Resources Board, and the Office of Environmental Health Hazard Assessment. DPR uses monitoring data collected by ARB to do a risk assessment. To date, data have been collected on 24 high-priority pesticide active ingredients. These data will be important in assessing pesticide risk in the ag-urban setting.

• AB 2161, the Food Safety Act of 1990. This law contained a number of requirements, but two in particular merit attention. One requires DPR to conduct a dietary risk assessment to assess the safety of food treated with pesticides. The second requires full use reporting of pesticides used in commercial production of food and fiber, providing a more comprehensive look at how much pesticides are used in food production.

**ENFORCEMENT**

Ensuring compliance with state and federal laws is a crucial part of the regulatory framework. DPR works closely with county agricultural commissioners in a comprehensive enforcement program. Some of the key components for headquarters (DPR) are:

• Enforce laws and regulations statewide.

• Oversee local enforcement as well as licensing and certification. DPR oversees local enforcement handled by the county, and works to ensure consistent enforcement statewide. DPR oversees the licensing and certification of pesticide dealers, pest control advisors, and pest control applicators.

• Administer residue monitoring. DPR administers the nation’s largest pesticide residue monitoring program, sampling California and imported products.

• Assess product quality. DPR monitors product quality, assuring that pesticide products contain the amount of pesticide claimed on the label.

California is unique in having a system of county agricultural commissioners to carry out local enforcement of state pesticide laws. The importance of having local officials familiar with county conditions cannot be over-emphasized. Some key local activities are:

• Safe use and workplace inspections. Commissioners conduct inspections to assess compliance with label requirements and applicable laws and regulations.
• Permit issuance. Permits for restricted materials are issued by commissioners, who can condition them based on site-specific needs such as sensitive areas. (See Frank Carl's presentation, page 20.)

• Registration of licensees. Pesticide businesses licensed by DPR must register in each county in which they conduct business.

• Collection of use reports. All reporting of pesticide use is made to the county commissioners.

• Local investigations. All incidents involving pesticide use are investigated by the county, including illness reports made by local physicians.

Joan Clayburgh
Executive Director
Pesticide Watch

Pesticide drift is an important aspect of the issue of how well pesticide regulations respond to the needs of citizens. However, the pesticide registration process looks largely at worker exposure. It does not appear to take community exposure into account; it does not assume that other residents of the area, including children, will be exposed. What is meant by "substantial risk"? That needs to be defined, yet the state law is vague.

The first problem for the citizen is who to call if you believe you have been adversely affected by pesticides. If you call the agricultural commissioner's office, their first response is often that the operator has a permit and the application is legal. They attempt to reassure you. It's true that in many drift situations the applicators are following the letter of the law; but the drift still may be going off-site into homes and schools. Then the problem for neighboring residents is how to prove whether it is or not.

There is no state handbook indicating what sampling has been done (or even what is appropriate sampling). Physicians often are not familiar with pesticides used in the area, or with the symptoms. When you want to document a case of pesticide exposure, what actions can a resident take?

If you want to go above local authority to the state level (DPR), the questions still come up: What do they need to find in order to act? If they found something, what action would they take? The investigation at Lompoc has been going on for several years, and the answers are still unclear.

The Federal Task Force on Spray Drift draft report recommended against applying pesticides in fog or during atmospheric inversions. But there is no mechanisms to get the recommendations into practice.
There are no plans, no timelines, no urgency on the part of agencies. They seem to be trying to resolve a conflict, not solve a problem. And the Ag-Urban Task Force does not have goals.

We are not opposing all pesticide use, but some of the most toxic materials such as phosdrin should not be used in urban areas. Buffer zones would help. And some methods of application should be prohibited in urban areas; it’s impossible to apply pesticides by air without drift. Buffer zones could protect agriculture. It’s important that we develop tools to protect public health and move toward a more sustainable agriculture.

**DISCUSSION: PESTICIDE USE AND THE REGULATORY FRAMEWORK**

(Email’s note: This discussion report and the three following provide highlights of group discussions during the conference. The “Issues” listed here are edited summaries of principal points, made in some cases by several participants. The responses are selected and condensed quotes addressing the issue. Those responding are identified in Speaker Biographies or Workshop Participants. See pages 65 and 69.)

**ISSUE: Even with restricted permits, based on wind conditions for example, pesticide drift still may take place. And if there is an economic advantage to be gained by spraying, isn’t the deterrent effect of restrictions and regulations minimal?**

*Jones*: The state licenses aerial applicators, and possible loss of a license is a major deterrent. Also there is additional recourse at the county level. The state works with ag commissioners and county health officers.

*Richard Greek*: If the area or the crop is particularly sensitive, we exercise additional oversight. We go onto the site to monitor the application, but all this takes staff and resources.

**ISSUE: Who sets priorities for the Air Resource Board’s measurements of 24 active ingredients identified under AB 1807, and for how many has risk been characterized?**

*Jones*: DPR sets the priorities. Risk characterization has been completed on one ingredient that was identified under AB 1807. However, efforts also have been devoted to other legislation that requires risk characterization. When the AB1807 monitoring has demonstrated residue levels of concern, DPR has taken regulatory action regardless of whether a risk assessment has been completed.

*Paul Gosselin*: DPR’s priorities have been on observed concerns.
George Rauh: I believe DPR would be happy to jettison AB 1807.

ISSUE: What recourse is there for citizens who believe they have a problem?

Clayburgh: We need something like a flyer with steps to be taken if you have a problem. We have no idea what the end of this process—the toxic air contaminant (TAC) list—will be. What level of proof do we need to get a pesticide off the market? We need to design a better system for reporting incidents and getting a response.

McCarthy: Synergistic and cumulative effects make studying the problem to get a definitive answer next to impossible. Therefore, action does not take place.

ISSUE: Isn’t there an obvious need for more answers, better chemicals, new alternatives? Meanwhile, serious attempts are being made to cut back funding for EPA and for research.

Stimmann: We not only need more funding at the federal level, but we need some regulatory changes. Many high-tech chemicals in the pipeline are based on better understanding of the biology and biochemistry of pest control, and could be used at much lower rates. But it’s difficult to get them registered; the problem is testing. And all agencies have financial constraints. Meanwhile, the old bad actors among pesticides are still out there, being used.

ISSUE: What is the research agenda for pesticide health effects, particularly for difficult questions such as effects of sub-acute and chronic doses, and effects on children? When will we have the numbers with which to take action?

Craigmill: The question keeps coming back to sub-acute and chronic doses, as well as the unknown effects of mixtures.

Jones: We need (1) better understanding of pest biology, so that better technologies (chemical, behavioral, cultural) can be developed; (2) better data on effects of exposure (field workers are most heavily exposed); and (3) better techniques to monitor low levels over long periods.
THE AGRICULTURAL INTERFACE

Philip P. Osterli
Director, UC Cooperative Extension
Stanislaus County

The Central Valley of California is a classic example of cities expanding out into the agricultural area. We've got a real potential for conflict. Today we have an opportunity to listen to some agricultural producers who were asked to discuss problems associated with farming in an urban vicinity—some of the choices they have regarding cultural practices, the long term prospects for farming at the agricultural urban interface, and some practical thoughts about the conflict between farmers and urban residents.

FARMING IN AN URBANIZED SETTING

Steve Borchard
J. A. Borchard Inc. and
M & S Leveling

With my father and brother, I grow tomatoes and field crops in Yolo County south of Woodland and north of Davis—right up against Woodland, right up against Davis. Also, I farm wheat and corn south of Woodland. It's an area that I've grown to cherish and I would like to see it in agriculture perpetually. My dad started farming in '62, and began growing tomatoes about 1968. Things were much different then, considering today's regulations and rules. We probably have a safer food supply, although it's becoming more difficult for agriculture to compete and to understand the attitudes of the city folks.

Let's begin with communication. My early attitude toward town-folk dates from 1975, when some of our land was condemned for city development on the very south-west corner of Woodland. I was in my early teens, loving the farm; it's in my blood. So, I had some resentment. I would drive a tractor on a rather dusty job—to smooth out the land after the crop is off and to prepare for the following year—and I would put up a cloud of dust and I was hoping for south winds, so I could annoy my neighbors in the city. Of course, eigh-
teen years later as a member of the city council I found myself chairing a committee that hears grievances of folks who are annoyed by cultural practices. (In 1991 the Board of Supervisors passed a right-to-farm ordinance in this county. There was a grievance committee and I volunteered my time. We've only heard one grievance and it was between two houses out in the country.)

So things have changed. I'm somewhat of a community activist in helping agriculture get the message out, using whatever facilities are available such as the City Council and the Farm Bureau. I try to tell my colleagues in agriculture to communicate, to let folks in the city know what we're trying to do. We're trying to stay afloat, but we do not want to endanger their health because we're trying to save a buck.

I'm going to talk about two specific problems. We picked up a lease some years ago on the Duffel Ranch, the controversial proposal Wild Horse development just north of Davis. (We'll probably farm it one more year, and then it's going to be developed—to my chagrin, because there's some good soil there.) This year we ran into a mite problem on our tomato crop and needed a Category One pesticide, so we had to spray by ground rather than by air—and in order to do that we had to leave the field dry until it was treated. Meanwhile, our well was going bad and there was a delay in surface water delivery. So we were unable to keep irrigating and spray by air; and we also couldn't spray by ground and then apply water quickly enough.

The worst feeling in the world is driving around your tomatoes knowing that they need water now—and you will not get water to them for a week or ten days. This constraint of not applying pesticides by air in emergency situations is from the agricultural standpoint very troubling. If there could be any way to have some sort of emergency exemption—if there's a south breeze, for example—could it still be okay to spray right up against town by air?

The other problem is the vandalism on farms close to urban areas. We have standard vandalism, like stolen batteries and broken windows—but farmers out in the rural areas get that too. It used to be motorcycle damage. Now, closer in, it's also the traffic, kids with bicycles, and the proximity that means more people in your area thinking that it's okay to walk on your land. Sometimes, I find myself yelling at people for getting out of their cars, going into my field and picking the tomatoes. How would they like it if I went in their back yard? Of course, they wouldn't like that—but since we have so much, then they think it's okay.

The kids on equipment are not just a problem of breaking our machinery; it's the legal liability. We are probably considered a deep pocket in today's courts. Every time I see kids with bikes on county roads, I see little law suits. When those kids are on your land, on your equipment and they're breaking your gauges—and if they hurt themselves, you're liable. That's the most frustrating part.
I'd be happy to answer questions from folks who believe that agriculture is secondary and the people who live along the borders are primary. You can imagine what my response will be to that.

**Brad Lange**  
*Lange Twins Vineyard Management Co.*

I'd like to describe what we have done on our San Joaquin County farm in trying to answer the urban dwellers' concerns about pesticide drift and other issues. I'm in partnership with my brother. We farm about 2,300 acres of wine grapes in San Joaquin and Sacramento County. Some of it is very rural but some of the vineyards are next to homes—in particular, rural homes. So we have the problem of trying to run a business profitably without impacting our neighbors.

As urban sprawl continues to move out into the countryside, is it the intent for agriculture to just go away? Buffer zones are fine, but who pays to establish and maintain those zones? We have the feeling that we're under siege, and the alternatives that we have now are only in the proving stage. Whether it's a different pesticide or a different sprayer or a different cultural practice in our vineyards, it's still very experimental—and we are a for-profit business. Only if our profits are there, do we have the ability to experiment and spend the money to try to answer some of the questions.

One thing that we've done addresses pesticide drift and the types of materials that we use. About the only thing we apply by air, occasionally, is sulfur dust for mildew control. Otherwise everything is applied totally by ground rigs that we run ourselves. We certainly address worker safety in terms of how we mix those loads and how they get into the spray tank; and we try to do most of our work without drift in the direction where there may be a rural house or subdivision.

Last year we purchased an electrostatic sprayer so that we can now use only 10 to 20 gallons of water per acre and cut our use of pesticides or fungicides up to 60 percent. This sprayer added over $35,000 to our budget, which would buy us almost five conventional sprayers. So it's a commitment on our part not only to help our bottom line (because that is, after all, our main goal) but also to consider the use of chemicals and be a better steward of our land.

We have gone recently to cover cropping—trying to establish permanent cover crops and using a no-till type of vineyard operation. From a farmer's perspective, this is very much like walking up to the edge of a cliff and jumping off, because we really don't know what some of these cover crops will do to the long term health of the vines. Out of our 2,300 acres, we've established approximately 500 as a no-till, cover crop situation. It gives us savings.
in equipment use; it also reduces dust pollution and some of the other concerns that our urban neighbors complain about. We hope it will give us increased water penetration, soil microbial activity and long term soil health. What we don’t know is the impact of nematodes and some microbes on the health of our vines over the long term.

We’ve also shifted to the practice of weed control in the area underneath the vines. We’ve approached this problem from two angles. One is to use only a contact spray instead of the pre-emergent herbicides that may leach down into our groundwater supply. Also, our county refuse company is now grinding up pallets and wood products and so forth that come from the city yards and city businesses, and we’re spreading that material about four inches thick down our vine rows. So far, we’ve seen about 60 percent reduction in weed germination. Our intention is to buy an infrared-sensor herbicide sprayer that would treat only the actual weed instead of putting a blanket spray down the row. This particular herbicide sprayer would cost us $20,000—compared to maybe $1,500 for a couple of regular spray nozzles. So, this equipment represents a major investment; and we would need more than one to cover our entire property.

The wood fines that we’ve been putting down the rows also cost money—an up front cost of over $45 an acre. It also takes a great deal of time to spread, including hand labor. So, the money is spent today, and we’re hoping that it will give us returns for several years; but we really do not know how long that material will stay there. Another unanswered question is what the mole, mice or gopher activity in that material will do to our vines. These unanswered questions pose an additional risk to us.

We also are trying to establish beneficial habitats along our waterways and in the small unused areas that, traditionally, we’ve shredded down or sprayed or even burned. Now, we’re allowing that habitat to grow and establishing some buffer areas. We’re taking our drip lines across to it. We’re planting some native plants which will not only provide beneficial insects in our fields but also provide habitat for the wildlife in our area, such as quail and dove.

To alleviate some of the problems that our cultural practice create for our urban neighbors, we try to time our spray applications and our harvesting so as not to inconvenience them to any large degree. That is often very difficult.

I think a big misconception of urban dwellers is that the country is a green, serene and open place. It really is not; it’s the center of a lot of activity. From slow moving vehicles on country roads to dust, air pollution, and so forth. We need two way communication on the agricultural side and on the urban side, particularly in the interface zones. We need consideration for neighbors on both sides of the street. In the long term, I think agriculture needs to educate the general public and urban dweller on what agriculture is and what we’re attempting to do; and to point out the importance that agriculture has to the local economy, to the state economy and the nation’s economy. In our Lodi area, the annual wine grape value is $150,000,000 a year. It’s a renewable
resource; we do plan on staying there; we do plan on getting along with our neighbors.

Al Medvitz
Montezuma Hill Ranch

I farm in Solano County. I've only been farming for eight years, but one of the things I've learned is that it is one of the most complex and difficult occupations. Farming and ranching is more than just a technical exercise; it is an important economic exercise that involves many kinds of management, a lot of judgment and a great deal of uncertainty. You must also realize that agriculture in the United States is under great economic stress. I would recommend a study published in 1993 by the USDA Economic Research Service, Economic Well-Being of Farm Operator Households, 1988-90, by Mary C. Ahearn, Janet E. Perry and Hisham S. El-Osta. The way the story was played in the press was that the overall average farm family income is okay—it's about $39,000. But one of the study's major conclusions is that farm operator household income from farming is much less than off-farm income. Even those 22 percent of the farms with gross series between $50,000 and $250,000 (and where 91 percent of the operators farm as a principal occupation) generate on average only $16,000 per year in income for the operator. Would you work 60 or 70, maybe 80, hours a week without vacations for $16,000 a year—and with a good probability of losing money?

Under these conditions—when constraints on pesticide use have adverse impacts on income—a regulation that says you can't use a pesticide at such and such a time, even though the market or weather demands it, is a great cost. Unless you understand the farmers' economic situation, you won't understand the negative response that you get from them when you suggest stopping or reducing pesticide use. The resistance of many farmers to regulation and restrictions on their ability to work is a rational response to difficult conditions. It is not an automatic, mule-like response to being pushed.

Another important point is to understand what's been happening to farmland in California, and why this problem—the interaction between agriculturists and urban folk—has reached its current condition. California's population has been growing at an average of 3.3 percent per year for 100 years. It's going to keep on growing at high rates. (Incidentally, only a quarter of our current population growth is from international migration. Half of it is from natural increase, and the other quarter is from in-country migration.) So we have suffered a huge population growth and loss of farmland.

Meanwhile, with fewer farms, California agricultural production has remained steady at about $20 billion yearly. With the multiplier effect, that's a $60-$80 billion contribution each year to the economy of the state. (And by the way,
even with fewer total farms, only 6 percent of the farms in this state are corporate farms.)

This huge population growth means that we're losing farmland. If we're going to maintain production in the face of population growth, how can we adjust to the declining land base?

We maintain production by increasing inputs and reducing losses, by using pesticides, fertilizers and irrigation. In the absence of well-developed and tested alternatives which are certain to work in difficult economic circumstances, we cannot expect farmers to easily reduce their inputs. So the issues involved are far greater than whether a local farmer is going to grow his crop or not. These are major long-term economic issues.

ROLE AND PERSPECTIVE OF AN AGRICULTURAL COMMISSIONER

Frank E. Carl
Agricultural Commissioner, Sacramento County, and President, County Agricultural Commissioners Assoc.

Topics I will cover include what the commissioner regulates, the restricted materials process, environmentally sensitive areas and how they affect the commissioner's role as regulator, what mitigation measures are utilized to minimize the ag-urban conflict, and finally, what are the long term prospects of farming at the ag-urban interface from a commissioner's standpoint.

An ag commissioner regulates a variety of things, including fruit, vegetable, nursery and seed regulations, but today's topic is our pesticide regulatory function. We regulate pesticide use, including application. When we look at an application, we determine whether it conforms with the product label as to the rate of application, method of application, type of equipment, crop restriction, and safety equipment that must be used during the application process.

When we inspect, we're looking for all those things. We enforce field worker safety, which includes reentry following an application and whether the applicator is wearing proper safety equipment. We're also looking at special restrictions near sensitive areas such as schools and at environmental protection. Is the application being made in a manner to avoid drift onto non-target vegetation, both crop and non-crop? In many situations, the non-crop vegetation is as important as the crop, particularly in areas with birds or other wildlife. So we're looking at all aspects of the application.

We're also charged with enforcing regulations to protect both groundwater and surface water. We're in the process of developing a management agreement with the Department of Water Resources and the Regional Water
Quality Control Boards. The commissioner will provide local enforcement for much of that agreement when it comes to pesticide application.

We're also charged with regulating pesticide use to avoid contamination of the public from any source—misapplication or drift as well as direct contamination. Quite often commissioners are involved in agricultural burning and with the right-to-farm ordinance and enforcement of those aspects of the ag-urban conflict.

In regard to the restricted materials process, basically we have two types—those that are restricted by the federal EPA and those on a California list of restricted materials, which generally have been declared restricted by the director of the Department of Pesticide Regulation for any one of a variety of reasons. Generally toxicity is the primary reason why a material would be restricted—it may be human toxicity, or toxicity to bees, or toxicity to particularly susceptible plants. As to the application process for obtaining a permit, generally growers will come to the agricultural commissioner to become a certified private applicator or a certified applicator. A certified private applicator is an individual, generally a grower or his employee who has been designated as his authorized agent, who has taken an examination in an ag commissioner's office, and can then obtain a restricted materials permit.

The restricted materials permit must be site-specific. We write it for a particular field; we also write it for a specific product (pesticide) on a specific crop. The permit is also time specific. A grower may come in at the beginning of the season and obtain his permit for a particular product on field corn, for instance; but when it comes time for the application he has to give us a 24 hour notice of intent (NOI) for us to go out and evaluate the site and the need for the application. Part of the commissioner's duty in issuing this permit is to determine that there's a need to treat, and on a percentage of applications the commissioner or his staff goes out in the field and evaluates whether the pest is actually there. We also evaluate the site to determine whether it's near a sensitive area—a sensitive crop that might be damaged from the application, or an environmentally sensitive area.

Also, we determine whether the hazards can be mitigated by changing the application process or the timing. We might look at whether it's going on by air or by ground, the use of drift inhibitors, selecting a time when there's a wind away from the sensitive crop or the sensitive area that might be damaged. Usually the permits are conditioned. There are general permit conditions that most counties use requiring the grower to use the proper safety procedures. There are standard conditions for use of a phenoxy herbicide near grapes or for the use of a highly toxic material near an environmentally sensitive area such as a school or hospital, for example. Or you may have specific custom conditions for a particular site. When those conditions are placed into the permit they have the force of regulation. They are enforceable. If it's impossible to mitigate the hazard, then it's the commissioner's obligation to deny that permit. If there are possible mitigations, then generally the permit will be issued and the appropriate restrictions will be enforced.
In regard to enforcement alternatives, the commissioner can issue penalties which range up to $1,000 per count, and also can suspend licenses, which would basically put a person out of business for a period of time within the county where the infraction occurred. We can ask for actions through the local district attorney, which is rare because that's a criminal action and generally we prefer a civil penalty. For a more severe civil penalty, we would go to the State Department of Pesticide Regulation and handle it through them and the attorney general. The Department also has the authority to withdraw, suspend or remove a person's license statewide, essentially putting that person out of business.

What is an environmentally sensitive area? Briefly it's any area that may suffer irreparable harm from pesticide application or misapplication, including streams, rivers, lakes and estuaries, wildlife areas, and endangered species habitat. Most commissioners have maps that show these areas. Also, schools and hospitals. Here in Yolo County, we've got rural schools adjacent to agriculture and there are buffer areas around those schools. We also include places where people congregate—parks, golf courses, certainly the urban fringe and shopping centers. In many counties the fair grounds are surrounded by agriculture and would become a sensitive area at least during that portion of the year that it's occupied. Also any organic or highly sensitive crops.

How does the existence of an environmentally sensitive area affect the role of the commissioner? Basically, it just becomes a part of the process that you take into consideration when you're writing a permit or supervising a pesticide application. It may result in specific permit conditions when a restricted product is being used. We have regulatory authority over restricted materials; we can restrict how they're applied and where they're applied. But when the grower decides to use a non-restricted material, basically we fall back to the label—that's all we have to enforce. If the label says they can put it on by air, then all the commissioner can do is follow up, observe the application, make sure that it's confined to the treatment area and, if it is not, take appropriate enforcement action.

What is the long term prospect of farming at the ag-urban interface? I believe we'll continue to see farming at the interface, and it will be successful farming. Our population continues to grow. We need not only to supply the people of California and the United States but consumers elsewhere, because much of the food produced in California is exported. We're going to need to farm at the interface. The control methods and technologies will change and we'll see improvements. Agriculture, hopefully, will adapt to that changing environment and the public, hopefully, will adapt to a more responsive and responsible industry.

**Osterli:** In Stanislaus County, there have been many efforts over the last 20 to 25 years to mitigate these problems. A right-to-farm ordinance has been adopted by the board of supervisors, and there's an agricultural element in the general plan that discusses how we might be able to use buffer zoning.
We haven't figured out how to pay for that buffer yet, but we're working on it. The board of supervisors recognizes that agriculture is the economic base of the community. They've also been very actively involved in an economic development task force. One thing that this group has been charged to do is search out industries that are compatible with agriculture and, with overall guidance from the board of supervisors, try to direct industrial growth off the valley floor and off the farm land.

**DISCUSSION: THE AGRICULTURAL INTERFACE**

**ISSUE:** Why shouldn't organic farming be considered as one way to reduce problems at the ag-urban interface? Organic farms would cause fewer problems for their urban neighbors. Organic agriculture is an increasingly important industry in California; some large processors are marketing organic products.

**Lange:** A grower producing organic grapes can make money if he is vertically integrated into the winery, because the grapes will find their way into the winery regardless of their condition. That's not the situation when we're under contract to a winery and, for example, we've had mite damage and an open canopy that's given the grapes a different color—a color the winery might not want. If we don't meet their quality standards, we go from $600 a ton down to roughly $190 to $120 a ton. I am not organic, nor am I trying to develop into organic farming. I do consider myself a natural farmer and try to figure out what makes sense for me. I've got the urban interface concerns pushing me along, as well as regulations that are created by urban interests. But I still would like to be able to move forward at a speed that I'm able to handle, so that I have the opportunity to stay in business.

**Borchard:** I would guess those few large processors are adding an organic component to their product mix and it's adding to the sales of their conventionally grown crops. Meanwhile, as a grower, I don't want to pay $80 an acre for pesticide, but if I would lose the crop otherwise I have to apply it. I am puzzled by the public perception that farmers could just stop using these pesticides and go organic. I'm doing some cultural work on contract for organic farmers, and I appreciate their attempt to get certified—it takes something like a three year period when you can't put on pesticides or conventional fertilizers. I'm not able to use any conventional fertilizers in farming their land, and where are the livestock sources of manure around here? There just isn't a local source. If organic farms are viable, why aren't there more of them?

**Medvitz:** The cost issue is exceedingly important. When you look at the prices of organic produce and traditional commercial produce, there are big differences. Who is going to pay that cost? Of course, some are willing to pay it. In general, though, if you start reducing the productivity of farmers and the cost of food in commercial markets goes up, who is going to pay it? What
are you going to do about the cost of food to the large percentage of the population who can’t afford to pay? On the other hand, pesticides are a huge management cost. I’m sure all of us—if we could get a price that would support our enterprises and not have to pay the costs and undergo the regulatory burden of pesticides—would happily eliminate them.

**Stimmann:** A number of chemicals are used in organic farming; there are organically authorized pesticides. They just aren’t synthetic chemicals, on the whole.

**ISSUE:** Farmers are legitimately concerned about losses if they don’t meet quality standards. However, the threat actually is only loss of the restricted allowance of “quality” under current market standards. Why not work together to create a system that still protects consumers while reducing a farmer’s risk if crop “quality” goes down because he uses less pesticide? What is the role here of processors and marketing firms?

**Osterli:** There are two conflicting pressures. Food and Drug offers no foreign parts of any insects or anything else in a processed product. You have that regulation and on the other hand you have someone saying let’s use beneficial insects to control the pests in the environment. These are competing interests.

**Lange:** It takes an intense approach to farming not to apply a chemical. We consider that we’re in partnership with the winery, but it’s difficult. Until their standards soften to the point where they can expect some mite damage or hopper damage or sun burn or some other related damage due to our not spraying, it’s difficult to wait longer before we go out with our spray rigs. When you walk that fine line, you have to make sure the winery is walking with you.

**Borchard:** My last load of bell peppers went in at 7-1/2 percent deduct on insect damage. I had sprayed only once. I got nailed on that load because it had either insect holes or marks or parts in it. We can’t afford to spray less or we’d lose 20 percent. Where is the margin?

**Medvitz:** An issue we’re dealing with in the meat industry is the concentration in food processing. There are now three slaughter houses and packing plants nationwide that control 75 percent of the market. They not only make demands about the quality we provide, but also about the price we get. They are multi-national corporations, so they’re balancing imports with domestic production and controlling the whole quality issue. Also, five grain companies influence the grain market. If these corporations change their standards—for example, allow certain residue thresholds—then the producers will follow.
Now we move away from the agricultural side of the interface, and concentrate our attention on the urban side. The underlying theme of this workshop is the necessity for long-term coexistence of farming and residential urban living in California. So the question is: How does coexistence take place, what steps are necessary to create it—assuming that indeed we will continue to have a productive agricultural segment in most parts of the state as well as continued population growth and accommodation of that growth.

One of the answers is to take a look at how communities grow, and then do some long-term planning which creates residential and other urban areas that take account of that edge, that provide the necessary buffers and the other ways of accommodating different land uses.

Local Agency Formation Commissions (LAFCOs) which exist under California law are basically county-city collaborations that involve the setting of boundaries. In this boundary-setting mechanism there’s an opportunity to do some long-term planning that may alleviate some of the problems we frequently encounter at the urban-farm edge.

I got a call from a city planning director the other day. His city wants to annex some territory adjacent to their town limit—a 160 acre parcel, a very high-producing vineyard, probably one of the best in the county. The city wants to locate a high school there, and in trade for the high school site that he would give the town, the owner wants to develop some housing. It’s an agricultural preserve, it’s been a vineyard for 30 or 40 years, and it’s also about three miles from the end of an airport runway. This is an example of a key issue for long-term planning, a real boundary line issue related to an ag use transitioning to an urban use.
LAFCO is the acronym for Local Agency Formation Commission. Our LAFCO consists of two city council people, two members of the board of supervisors, a public member, and two special district representatives. In 1974 the legislature set forth policies and priorities to consider in the conversion of ag and open space lands to other uses, and also required LAFCOs to establish policies and set forth standards to evaluate proposals. It is the stated intent of the legislature to encourage planned, well ordered, efficient urban development patterns with appropriate consideration for preserving open space and agriculture land.

A LAFCO is an independent agency. Every county has one. In most counties it's housed in either the county planning department or county administrator's office. A LAFCO's actions may involve formation and dissolution of governmental organizations, but most often they are concerned with boundary lines—annexations. A LAFCO can't impose any land use regulations; for example it can't impose zoning. It can't tell a developer how many houses he can have, or what color they're going to be, or where the streets are going to be located. Its power is very limited.

A LAFCO acts legislatively, much like a board of supervisors; in other words, there's no appeal from a LAFCO decision. For the most part we don't initiate annexations (we have very limited authority to do so), and we don't conclude them. We fit in the middle, and so we have a lot of authority but over a very small space. A LAFCO relies on somebody else to initiate an action, either by petition or by a city declaring its intention to annex some territory. The proposal comes to LAFCO which decides the issue. LAFCO weighs many factors, but one of the most important that the law requires is agriculture and open space. The legislature has set out some standards, general but relatively clear, saying that prime agriculture land or open space lands should be preserved. There are several tools LAFCO uses to do that, and one of them is called a sphere of influence. The spheres are the probable ultimate boundary of a government agency. Like a general plan, the spheres of influence are plans for future land use; they generally distinguish lands that eventually will be in the jurisdiction from those that will be outside. In the case of most cities, it's rural versus urban. A sphere of influence is essentially an annexation plan. Once a sphere of influence plan is adopted, annexations can't take place outside that line.

We fit in the middle, and so we have a lot of authority but over a very small space.

Only LAFCOs can adopt spheres of influence, and you have to request that LAFCO amend the sphere of influence if you want to annex outside. There are several findings that LAFCO needs to make in adopting a sphere of influence—present planned land uses, including ag and open space lands; expected needs for infrastructure; the capacity and ability of a jurisdiction to provide that infrastructure; and other social or other economic communities of interest.

I think LAFCO is doing a good job in Sonoma County with long range planning and cooperation between the cities and the county. Our LAFCO relies
heavily on city general plans and the county general plan. These plans urge city-centered, compact growth, and finite urban boundaries. Just outside most of those urban boundaries, those finite boundaries, they have areas that serve as community separators. The county also has an agricultural land use element, a right-to-farm ordinance and an open space district. The open space district has an acquisition plan, and a quarter cent sales tax has been approved for the acquisition of those lands. Most of that land is in the community separators at the present time. A couple of years ago, our LAFCO adopted a policy saying that you can’t annex land in a community separator nor include community separators in a sphere of influence. That policy seems to have held the boundaries well.

Janet Ruggiero, Director
Woodland Community Development Department

In Woodland, we’ve addressed issues of agricultural land protection for many years. They are similar to industrial-versus-residential issues; if we look at the edge the same way we do the residential-industrial edge, I think we’ll find mutually acceptable solutions. We don’t view agriculture land simply as open space. That’s a benefit we receive, but primarily we see agriculture as a substantial part of our economic base.

The city has had three general plans over the years and each of them addressed the issue of protection of prime agricultural land. Each time we do it we get a little better. In 1959, our plan—which was similar to those of many of the Valley towns because they were all done by the same consultant—basically said that we should protect agricultural land. A very simple statement, the county had it and all the cities in Yolo County had it in their plans. In 1979, the city of Woodland went further. They adopted an urban development policy in conjunction with the county, which basically said that a city’s role was to provide urban services and that the county’s role was to protect agricultural land and agricultural production. This meant that all urban development would occur within the city limits of Woodland and not within the county. This plan also established an urban limit line, which was to identify the areas in which the city would grow for 20 years. Those were important steps for the city and there was a lot of controversy. Some farmers wondered whether this urban development policy was really going to protect them. Other farmers said: “But that’s my retirement, I want to develop that land in the future. Why are you restricting development?”

In 1988, we again updated the general plan. We continued the urban limit line, and the urban development policy. The city has continued to grow, and we’re right on our population projections of 1979. The county’s right-to-farm ordinance was later adopted by the city to ensure that farming would continue.

We don’t view agriculture land simply as open space . . . primarily we see agriculture as a substantial part of our economic base.
on the edges of the city. In Woodland, you clearly know when you’re in the city and when you’re not.

We’re updating our plan again, and we are looking at techniques to improve that edge relationship between agricultural and urban areas. One of the side effects of this is the issue of establishing ultimate urban limit lines for the city of Woodland. We feel it is important to clearly say that west and north directions are two areas that we do not want to develop.

One technique under discussion is that of using streets to define the edge—to create a little bit of buffer. Also, we are looking at something called agricultural residential estates, where you create little farm units—they can be 20 to 40 or 60 acres with the houses sitting up front, and the remainder of the land in conservation reserve so it’s dedicated to farming. The controversy about this one is whether you should use prime agricultural land to do this, but at least it would establish a definite ag-urban separation. Farming on the land would be limited to certain types of activities that would fit in with the adjacent residential lands. Another alternative is public open space, to put our park lands and golf courses at the edge between the houses and the farm land. And still another is use of conservation easements along the edge. One of the down sides of all this is the issue of who pays for it—the expense of using these techniques. But if it’s built into the overall comprehensive planning process, we may be able to reduce those costs.

In any case, none of this is going to work unless you have a comprehensive approach—a reference for what you want your community to be. This defines who you are as a community; and in a Valley town, if you can’t do that, I think you’ve got some real difficulties ahead in trying to deal with the ag-urban edge. Woodland was very clear about what they wanted to be. One of their aims was to retain their small community feeling. They knew they wouldn’t remain a small town, but that feeling was important to them, and so they wanted to preserve as much of the ag area as they could. Using the general plan as a vehicle, they established a comprehensive approach to addressing the urban-ag edge conflicts.

A second important component was the protection of ag land as it related to economic development. Spin-offs were important in terms of manufacturing—seed research and equipment sales and repair, for example, were vital parts of our economic development program.

A third component was long term commitment to the policy. This does not happen over night; it’s taken us since 1979 to get to where we’re at. Fourth was coordination with the county; that’s extremely important from a city’s perspective, as is working with the Farm Bureau. We’ve spent many hours with communications tools to address those issues. And fifth is public acceptance. If the public did not accept what the city council had done, I don’t think we would have gotten to this point.
George Rauh
Volunteers for a Healthy Valley

I recently installed a new sink, but it leaked. My wife told me to fix it. So I went to work on it, and it became a lot better, so I left it. And the next day, she said, it's still leaking. I said the thing is mitigated; I mitigated the leak. She said mitigation, schmitigation, fix the leak. So I went back to work and I am proud to say I did fix it.

There's a point, of course. Mitigation means to alleviate pain, to make less harsh, to alleviate suffering. I submit that this is rather a paltry vision of life for us where I live, right next to pesticides—chemicals that live, 10 or 20 years down the road are going to do some really bad things to you and your children. Somehow, the very use of the term mitigation concedes that we're going to put up with this stuff. We don't want it in our lives.

Look at what farming has become since World War II. I am not criticizing any individual or any group of people, I'm talking about a system we're living with that has been a colossal mistake for years. We have topsoil eroding at alarming rates. Aquifers and water everywhere are polluted. Salt has built up in many parts of California, so that farm land can't be used any more. Insects, weeds, microbes are becoming resistant to pesticides. How do you mitigate all that?

We who live at the ag-urban interface, the farm workers, the children who eat too much pesticide in their food—we're all collateral damage of a system that's not working. It's time for some fundamental changes.

I don't want to blame anybody. As I listened to the farmers here, I felt concerned—these are people who are trying to do the best they can and still stay afloat, as one of them put it. I'm not trying to blame the regulators; I think there are many well-intentioned people in DPR and EPA and at the county level. In our area the farmers (who, by the way, admittedly won't talk to me) have done some good things. They have stopped using aerial applications within a quarter mile of the town. This is entirely voluntary. I think some people might have benefited. But that's just not enough.

In Lompoc, we live in a valley that's like a fish bowl. We get a constant wind blowing from the ocean (the valley opens to the ocean in the west), and the wind travels over six or seven miles of farmland that is continually sprayed. There are cole crops (broccoli, cabbage and so on) and head lettuce—20 to 50 chemicals a day are sprayed out there, and the winds are constantly blowing through Lompoc. In addition, we have heavy fog in the mornings when they spray and we have inversion layers. We have conditions that affect the population of our town, and people are sick.

Somehow, the very use of the term mitigation concedes that we're going to put up with this stuff. We don't want it in our lives.
We have been complaining for almost four years now, and in actual changes and regulations have gotten almost nothing. In the California Department of Pesticide Regulation the idea is to serve agriculture and protect the public. Serving agriculture is being done; protecting the public, I'm sorry to say, is not—even with the well intentioned people there.

People complain, they go to the doctors, the doctors say we don't recognize this; we don't know what it is. We'll just keep giving you antibiotics. Many adults and children—women particularly seem to be most affected—are taking antibiotics all year long. Because chemicals are a legitimate part of the profit system, people are becoming sick.

For us, pesticides are much more than a nuisance; we don't classify them with noise or dust. This is really a serious medical problem. What's unfortunate is to see so many sick children. Doctors tell me that for the most part children should not have severe headaches, turn gray and be nauseated. This happens to many children in Lompoc. None have been reported to the county health office in the last four years because none of the doctors understand these things. They basically have had no training in this and they can't see the forest for the trees.

There are Lompocs all up and down the state I'm sure, particularly in the Central Valley and the Imperial Valley, where people are simply sick and put up with it. If it's not fair to the farmers to take away their chemicals, then we have to find a way of farming that's different and will work. And the place to do it is at the ag-urban interface—where most people are going to be most affected. The first answer would be a buffer zone. In the buffer zone, we want organic production only. Second, in our area and probably many others near towns, an end to aerial spraying is needed. Farmers can work around that restriction, and if it's going to save people from drift, then they should. A third point is to eliminate the really bad chemicals. And the fourth is to work on a pesticide reduction program like those in Holland, Sweden and Denmark. These programs aren't necessarily perfect but they are something we need to work on statewide; we should be working to reduce our pesticides and not increasing them.

ROLE AND PERSPECTIVES OF THE COUNTY HEALTH OFFICER

Elliot Schulman, M.D.
Santa Barbara County Health Officer/
Medical Director, and President,
Calif. Conf. of Local Health Officers

Public health is community-based medicine as distinct from individual medicine. Public health looks at the overall health of the population rather than individuals.
Certainly public health departments in the state of California take care of individuals; many of us are responsible for indigent care. But in general the focus of public health is on the community's well-being.

Public health people believe that residents have a right to protection from avoidable health hazards. Thus our interest in pesticides particularly, but in all the ag-urban interface issues. Because we are concerned with the population, we tend to be prevention-oriented. And when we talk about prevention we think about primary prevention. So we get involved in advising about questions like buffer zones and other land use issues.

Public health is scientifically based and the underlying methodology is epidemiology. That requires data and information and study to be able to wisely advise those bodies that make public policy in our state and localities. Public health is also very collaborative. We collaborate with all members of the community, local government, state government and the feds in many regards. There are 61 health officers in California. That's every county plus a few cities.

To be a health officer, you have to be a physician. Do you have to be trained in public health? No. Do you have to have a background in any of the other disciplines that might be important to be a health officer? No. Are there many physician health officers who have advanced training in public health? Yes, but it's not a requirement.

The health officer is appointed at the local level by the board of supervisors, but we also have a foot in the state. We advise the State Department of Health, we advise the legislature, we advise anybody who requires information about public health and related issues at the local level. We do that primarily through an organization called the California Conference of Local Health Officers. We have a network of committees that looks at things like environmental health, communicable disease, chronic disease and so forth. We also have eleven different affiliates—health educators, public health nurses, environmental health directors and so on, that meet with us monthly. Again, our primary role is being advisory to those bodies that make decisions of public policy as it affects the public health.

How do we get involved? Since one of our bases is prevention, how do we anticipate what needs to be done? I will use the pesticide issue as an example. The problem is that we are asked to advise regarding the current state of scientific information so that judgments can be made about things like land use; but I don't think we have enough information to be able to advise those bodies that have to make decisions at present. So what do we fall back on if we cannot make these decisions purely on the basis of science? We have to advise how to get those answers. We have to point out the direction that needs investigation and how to investigate it.

A fundamental role of public health also is health education and we have to educate physicians in the field at the local level so they can be aware of
Sometimes we have to prioritize our values in the absence of hard data.

these problems. Their focus is not on the community as a whole, but on patients who walk in their door—so they tend to see the trees and not the forest. We’re also talking about illnesses and diseases that may have a very long lead time or result from cumulative effects. We might not even appreciate what questions we ought to be asking or what we ought to be investigating. We may not have the methodology to do that; and I can assure you that we don’t have the resources. But that doesn’t mean we can’t raise questions and participate in this debate. I think we have to accept the fact that at this time we are making decisions that are really value-based and not necessarily science-based. Sometimes we have to prioritize our values in the absence of hard data. I think land use decisions do that all the time, and I welcome the ability of public health to have a voice at the table.

**DISCUSSION: THE URBAN INTERFACE**

**ISSUE:** Within a community, physicians are in the best position to immediately evaluate possible health effects of pesticides. What could be done to enable physicians to more effectively recognize and report pesticide-related illnesses?

**Schulman:** When someone comes in with a common complaint—for example, an upper respiratory tract infection—it is difficult to ask a physician to separate out the role of potential pesticide exposure. At that point, what would trigger a report that the doctor reasonably believes the illness to be caused by pesticide exposure? The current reporting system certainly tilts toward acute exposures. I’m not sure how to deal with the questions about long-term effects. How should we be sensitive to and report those effects? Of course we maintain birth defect registries, cancer registries, and so on.

As to increasing physicians’ consciousness of pesticide-related illnesses, I find it hard to believe that consciousness isn’t raised in a community such as Lompoc where this issue has been on the table for many years. The dilemma that physicians report to me is: “How do I separate those out? If someone comes in with an acute exacerbation of their asthma, for instance, do you really want me to report that as pesticide-related—even if we are talking about a low dose where there’s no evidence of direct exposure?” We may be asking the system to do something other than what it was designed for. We may need to rethink the system.

**ISSUE:** Health problems typically attributed to smog may be similar to those of pesticide-related illnesses. For health care purposes, is it necessary to distinguish the causes or agents? What about people who, because of the expense or other reasons, don’t have access to that kind of assessment?

**Schulman:** It would be very difficult to make that distinction on an individual basis. We don’t have methodology that is affordable and specific enough to
do that. But you certainly can take a community-based look. We make some brief surveys regarding hospital admissions for respiratory tract diseases. We have surveyed pharmacies for the amount of medication that they were dispensing for asthma-type illnesses. All this has to be scientifically based, and that is where the priorities come in when resources are limited. If we have this perplexing question that is being raised over and over again, and we have a belief among some of our residents that something is occurring, and the situation is such that it might be occurring, when do we dedicate some of our scarce resources toward that investigation?

The overall question is our commitment as a community, as a society, to look at these potential health-related questions. How much of our resources are we willing to devote to these questions? And with what speed? And even if we set up a system that works, how is that going to affect public policy?

The early discussion in any community such as Lompoc should involve, first, whether there is exposure and, second, what is the degree of exposure. If we are able to monitor and nail down the degree of exposure, then the question becomes, “Well, even if it is at this level, what is the actual effect on health—short-term and long-term?” There are some questions that the scientific community cannot necessarily address with certainty. That’s why we often fall back to some sort of value judgment in determining priorities. In the absence of scientific proof, what do we most value; how should we tilt?

**ISSUE:** One possibility might be to consider an agricultural region like an earthquake fault zone or a flood plain. People who live there may be in potential danger, but it’s very difficult to specify the degree of risk. In the long run, might it be less expensive to simply invest in relocation—move people out of the area?

**Schulman:** I’m for prevention. As long as we have to support farming and since people have to live someplace, shouldn’t we be able to keep them separated somehow?

**Bob Schneider:** The difficulty is in dealing with problems in the long range. Years ago the city of Hayward refused to draw the Hayward Fault on their maps, because they were afraid people wouldn’t move there. But not defining the problem is part of the problem.

**Karen Salkind:** It’s a too rigid definition of agriculture to equate farming activities with the potential for natural disaster. If I were a grower, I wouldn’t be comfortable with that analogy. We know what an earthquake is, but anybody associated with agriculture knows that it is constantly changing. It must be defined in terms of a particular place and time. Farmers are trying to address these issues; we can’t just write them off and say things can’t change. Also, relocation would be very expensive.

**Medvitz:** Where we build cities and what technologies we use are decisions that we make. These processes are subject to control. There should be a
place in this discussion about whether or not people ought to let themselves be at risk, or be allowed to be at risk—if they believe they are at risk. Then we can choose whether or not to place restrictions on whether people live downwind from a refinery, or in the landing pattern of an airport, or within 50 feet of a freeway.

**ISSUE:** How much information is needed? On the one hand, how much information would be required to convince a public health officer that an illness is pesticide-related—that pesticides are causing a problem? On the other hand, how much information would be required to demonstrate convincingly to the anti-pesticide advocate that an illness is not pesticide-related—that it is caused by something else?

**Rauh:** The available literature is not on the chronic effects. There has never been a long-term study of the chronic effects of pesticides on people in California or anywhere else. We have long-term studies on dogs, but not on people. We have studies of refineries in Crockett and Pittsburg showing that people in refinery drift have the same sorts of illnesses, and of course refinery drift and pesticides are both petrochemicals. And these are real illnesses.

**Schulman:** The science of epidemiology has developed ways of looking at data and suggesting whether or not there is a general impact on a population, and what are the odds. But it takes a lot of information over a long period of time; and Rauh’s point is well taken, we don’t have enough information. Meanwhile, in dealing with individuals, where is the proof? You speak with their physician, you look for evidence that links their illness to some possible cause. That process has to be inclusive and it has to be done scientifically. And we haven’t done that.

**Rauh:** We’re dealing with acutely toxic materials. They initiate things in your body that the scientists who created them had no idea of. This is the 50th anniversary of the first public introduction of DDT and other chlorinated hydrocarbons; and we have just now learned that its basic breakdown product causes havoc in the male fetuses of human beings. Fifty years from now, what are we going to learn about the organophosphates and fungicides that are pouring down on Lompoc every day?

**Medvitz:** The difference between correlation and causality is a fundamental issue. There has been much speculation about whether electromagnetic radiation from power lines causes cancer in children, but an extensive epidemiological study has shown that the theory doesn’t hold up. But the people near the power lines did get sick, and they looked for a cause.

**Steve Forsberg:** There is a valid role for epidemiology in determining whether pesticide use is having an impact on a particular community. The macro approach is not an excuse to ignore specific cases, but it is necessary
to keep the effects of pesticide use in perspective. Adjusted cancer rates are down, except for lung cancer and that is attributable to cigarettes.

**Schulman:** Epidemiology is one of the cornerstones. I think social justice is another one. There’s a need for balance here, and how we as a society make that balance is still not resolved.

**ISSUE:** Considering that LAFCOs do not have authority to zone for land use or determine population density, how did the Sonoma County LAFCO establish its policy not to allow development in community separators?

**Sharpe:** The community separators are set out in the county general plan. In doing that, a lot of communication was needed among cities and the county and LAFCO. One of my commissioners went around to the cities and sold them on this commitment to open space. Of the nine cities in the county, all but two adopted the policy. In order to annex any of that open space area, the cities and the county have to develop an agreement in which there is some sort of mitigation—and LAFCO is there to help resolve that. So far we haven’t had to deal with it.

**ISSUE:** The degree of success of the Woodland model is in large part due to the community itself accepting the overall plan to protect ag lands. Could a small community model like that be extrapolated to a larger arena such as the state?

**Ruggiero:** Several years ago, John Gamper and I and others spent many a weekend working on a proposed consensus project dealing with statewide growth management issues. Some of the discussion was on the idea of statewide urban growth boundaries. But the political will to do that is lacking because it is viewed as a threat to the state economy. Fortunately we in Woodland have not seen any such economic downturn; our urban growth boundaries do not limit our economic growth. We have continued to attract jobs. (Oregon has a statewide program of urban growth boundaries, but it is not viewed as a very effective tool. However, they’re growing economically.) Until there is political leadership to have it happen statewide, I don’t see much encouragement. And I don’t see that coming until people really rate quality of life along with good economic growth.

**Betsy Marchand:** Land values, lack of effective land use protection for prime ag lands and lack of guaranteed water for agriculture all are driving ag lands into urban development. Competition for water, especially, is a major edge issue.

**ISSUE:** Population growth will continue to put pressure on the urban edge. As that occurs, will the cost of techniques to establish buffer zones be prohibitive? Who would provide the land—the farmer, the developer, the urban dweller?
**Ruggiero:** One of the ways to achieve permanency is public open space locations on the urban edge, and that can be done with a private-public partnership. You build that into the design of your community, and that starts to create the buffers. You can then address the cost factors. Maybe there are areas where you can't provide the infrastructure, so you limit the growth there and transfer development to other areas that have infrastructure.

**Marchand:** Buffer zones can be planned for, but they cost money. Developers will have to pay, but cities and counties have other priorities for developer exactions, such as schools, expanding sewer plants, parks, etc. There are only so many exactions that new businesses and home owners can fund.
REDUCING THE CONFLICT: CURRENT APPROACHES

Alvin D. Sokolow

Assuming that we need to look beyond the formal regulatory process which was outlined earlier, what are the directions that can be taken on a community basis? We will look now at how individual communities have addressed the pesticide problem at the edge, and what possible lessons we can learn from them.

John C. Voris
Area Turkey Specialist
UC Kearney Agricultural Center

I want to talk about a way of resolving land use conflicts—specifically, conflicts between turkey farmers and the public. Many years ago when the problem started we raised turkeys in large outdoor flocks that produced dust; we used sprinklers to control the dust and created a different odor. Today turkeys are almost entirely indoors. Meanwhile, rapid population growth and a steady increase of per capita consumption have increased the demand for poultry. This means we have to grow more turkeys, putting the industry on a collision course with our neighbors.

Traditionally the poultry industry has been located in remote areas. When the urban pressure became great, we have moved further out. Today, the poultry industry is becoming resistant to relocation. We need to be within 30 to 50 miles of our processing plants and feed mills. In addition, confinement buildings make mitigation of nuisances easier.

It goes without saying that proper siting is imperative to avoid land use conflicts. If a producer is not next to residences he will not have trouble with neighbors. Also, if a turkey grower doesn’t make mitigation of nuisances a top priority, he probably will get into trouble. Therefore, we need to develop an awareness of the importance of proper siting and nuisance management, and one way of doing that is to develop guidelines.

One of the good things about developing guidelines is that they can rapidly become ordinances; not just in your county but in other counties. They are
welcomed by county governments because they make regulation easier. The reason is the farmer and the public both had some input, and there is already some agreement on both sides.

To write guidelines, mature producers with a lot of time to devote to a lot of meetings are needed. They will have to discuss for long periods of time what industry and the public think they want. Public representation is needed not just from the area in conflict, but from the entire county or area being regulated. Representatives from county government—the health department, the planning department and somebody from the agricultural commissioner’s office—are also needed.

The guidelines that we developed have a siting standard for separation between the poultry facility and neighboring residences, and in some cases between the poultry facility and other agriculture. We also developed separations or setbacks from property lines, ditches, canals, and other waterways.

Siting standards are based on separation; and a windshed diagram was used to establish the separation distance. The windshed diagram is used as an overlay in the planning department. It tells you how much of the time the wind is blowing in a particular direction at a particular velocity. That gives an opportunity to set siting distances from the poultry facility in the direction of the wind. The windshed is an egg-shaped buffer zone, giving protection for neighbors in the community.

A management plan is needed to list operational practices dealing with nuisances. This plan needs to be reviewed and approved by the health department. Management guidelines include a plan to keep feathers out of your yard and the neighbor’s yard, a plan to reduce dust production and a plan to control fly production. Hopefully flies will not be produced, but if they are, how will they be controlled? How will rodents be controlled?

In Fresno County, a 10-day notice is given to neighbors. This is an “after the fact” notification that comes after the permit to build a poultry facility has been issued. This notification gives the producer’s name, phone number and address. Usually there is also a notification clause which is a preventive for the future. If someone is considering moving into the area they can look at that clause or hear about it from their realtor, and be able to decide if they really wish to move in.

An ordinance alone does not make good neighbors, but it can develop parameters. The best way of having good neighbors is to interact; to be able to talk with one another. We are concerned with the livelihood of the farmer versus the quality of life of the neighborhood. The best means of resolution is open dialogue. Even with an ordinance, litigation may occur. We have heard about the right-to-farm laws. The right-to-farm law does not give the producer a right to create a nuisance. If a producer does a good job farming, but continually creates nuisances, that producer may lose—because in our system the group with the biggest vote, the non-farmers, ultimately wins.
Douglas N. Edwards  
Deputy Agricultural Commissioner  
Fresno County

I have responsibility for the pesticide use enforcement program in Fresno County, which is the number one agricultural county in the world. It is also the number one user of pesticides, which means my job is complicated. We have had a program in place for about 18 years which we call the Red Zone. It applies to aerial application in and around the cities of Fresno County. In the 1970s we noticed a rise of complaints that seemed to relate to the use of aircraft for pesticide application in and around residential areas—both drift and noise complaints.

We took a map of the county and drew a line approximately a half mile outside the developed areas of the city of Fresno and the other larger incorporated and even non-incorporated cities in Fresno County. Inside that line, aerial applicators need pre-approval from our office before they are allowed to make an aerial application of any material. We did not use zoning as a criterion for drawing the line because zoning does not always follow the area that we want to protect. Some areas that are not zoned residential are fairly well built up. The Red Zone periodically changes as new development goes in.

This is something we did pretty much unilaterally with the applicators, not with our planning commission or anything like that. We just sat down with our aerial applicators and said, "This is the zone and inside the zone you have to give us a call. And if we don't give you an okay on it, you can't do the job." We also have a policy prohibiting application of materials with greater than 48 hours reentry times within an eighth of a mile of schools. Schools are defined as sensitive areas.

We have a good situation because there are only three or four applicators who work in the Red Zone, particularly around the city of Fresno. It is a difficult area to fly in. Agriculture is for the most part in fairly small plots—10 to 20 acres, trees and vines, some vegetable crops. There are a lot of obstructions—power lines, phone lines, other things that make it difficult to fly. We haven't had much problem with compliance because in a sense we are doing the aerial applicators a favor. We said, "Okay, applicators. We'll wear the black hat for you. We'll be the person who turns down the job that you don't really want in the first place."

It's interesting that we haven't got the authority to do all this. We have a legal process that applies to the use of restricted materials only. We cannot precondition the application of a non-restricted material. If someone wants to put on some very toxic material, we condition the grower's permit: no aerial application. But if what they are putting on is a non-restricted material like sulfur—which by the way is probably the source of more complaints than

We haven't had much problem with compliance because in a sense we are doing the aerial applicators a favor.
anything else—we really haven’t got the legal authority to say no. But the system works anyway because the applicators have seen it is to their advantage.

We try to apply this voluntary approach in situations like this because we find it to be much more effective than a regulatory approach. Regulatory approaches, I think, should always be the last resort. We try to bring together all the parties involved and get them to agree.

Kathleen A. Thuner  
Agricultural Commissioner  
San Diego County

In San Diego County in 1985—as a result of emergencies created by the Caribbean fruit fly, the gypsy moth and farming next to expensive homes—we formed what we called the City-County Task Force on Ag-Urban Issues. After three public hearings it became the City-County Task Force on Ag-Urban Issues and Pesticides, because pesticides are the focus in more cases than we wanted to admit.

San Diego County has the second largest number of farms of any county in the United States next to Fresno, but our farms are on average less than 15 acres. They are vital to the economy of the county and account for over a billion dollars in value annually. That’s not by any multiplier effect; that’s the actual production value. We don’t possess any of the traditional requirements for large-scale agriculture. We have no large plots of good soil. We have very little water. But we do have one thing that is going for us—an excellent climate that allows for pretty much year-round growing.

We also have a very different attitude about how to get things done, and it is definitely not through regulatory activity or legislation. As a result we currently have no ag element in our general plan. Meanwhile, out of the 6,552 people who claim to be farmers in the county, only about 3,000 actually get operator identification numbers, and of those a little over 1,000 have restricted material permits.

We discovered when we put together this task force that a lot of people needed or wanted to be on it. As a result it had 15 official members and a host of ex-officio members. It had a purpose, a goal, and a timeline of two years. The final report was filed in March 1987. It took the county until March, 1988, to address the task force’s 26 recommendations. And each of them was addressed; maybe not exactly as foreseen by the task force, but with the consent of the task force.

There are three results which might be of interest to you. One is that although we don’t have a right-to-farm ordinance, we do have a consumer disclosure ordinance which is entirely voluntary. It’s voluntary on the part of
the farmers to enroll so they can know what is going on in terms of land use within one mile of their operation. Also, when people move into the county they can find out what is going on within one mile of their home. But this gets back to another concern: How do people know where to go to get that information? It's like where to file a pesticide complaint. The realtors have not been all that supportive of letting people know.

Another result is that the county has a Pesticide Advisory Committee (which about a year ago was converted to Integrated Pest Management Advisory Committee). The reason is that my office provides pest control services to county buildings for fleas, ants, roaches, rats, and other pests. We also do all the weed control work along county roads. This committee looks at how we as a county use pesticides and herbicides, and tries to minimize their use.

There is a third and very important result. Originally the task force proposed a standing interface board but the county supervisors decided perhaps that wasn't the way to go. Instead, a recommendation was developed that says the following:

Both county staff and the task force representatives agree that each conflict between agriculture and urban growth is unique and requires different people, organizations and government departments to resolve. One department that will remain constant in this process is the agricultural commissioner's office. Staff and the task force also agree that the agricultural commissioner has historically played a lead role in resolving such conflicts and it is the recommendation of the county staff and task force representatives that this continue. Conflicts between agriculture and urban growth shall be forwarded to the ag commissioner, who may appoint professionals, and members of citizen organizations, government agencies and/or the Pesticide Advisory Committee to an advisory committee to recommend measures to the ag commissioner to resolve the conflicts. All San Diego County departments are directed to assist the Department of Agriculture, Weights and Measures in resolving any conflicts that have been forwarded to the ag commissioner.

This may not be as effective as a public health officer closing people down but I waive this board order in front of other department heads and it works. This allows an informal procedure at the county department head level in resolving conflicts between agriculture and urban land users. Hopefully, it avoids time-consuming hearings before the Board of Supervisors and resolves problems more quickly and less expensively.

In considering ag-urban edge problems, there seems to be a perception that people move in and agriculture was there first. In San Diego County at least, that has not been the case all the time. I would say that in half of the cases during the last 10 years, agriculture substantially changed what it was doing. Dryland farming may have been there—beans or wheat or whatever. And...an informal procedure...resolves problems more quickly and less expensively.

41
then in order to stay economically viable, the farm changed its cropping pattern and became in effect a new operation. That has been perhaps the most important issue that we have faced.

In 1979, a survey was done by the National Institute of Occupational Safety and Health which I think reveals why doctors do not know much about pesticides. Seventy percent of the responding medical schools indicated they required no formal instruction in occupational or environmental medicine. Among the 30 percent that did, the median time required was four hours during four years of medical education. In a repeat survey in 1984, 54 percent of the schools included such instruction, but with a median time required of still four hours. One of the issues that we were never able to resolve, a recommendation of the task force, was the need for much greater effort to alert physicians—not just to the acute, but also to the chronic effects of pesticides.

Richard Greek  
Agricultural Commissioner  
San Luis Obispo County

In San Luis Obispo County, we have a growing population with an urban perspective. Our past planning practices have been abominable. We have antiquated subdivisions that predate this century—25 foot lots right out in the middle of agriculture. We also have an agricultural industry that is diversifying and intensifying and so we see not only conflict between ag and urban, but between ag and ag. The political process obviously influences what is going on. We're trying to steer a course that is palatable regardless of the political makeup of our board of supervisors; whether I can carry that off and have a future career only time will tell. Right now our number one problem is noise. Our number two complaint is a combination of dust, odor and chemicals. In one development on a 3,500 acre ranch, they clustered all the houses on a hilltop, built million dollar residences. Everybody owns 2 percent of the ranch. First complaint we get: cow doo-doo on my Mercedes' wire wheels. So there definitely is an urban perspective.

In regard to the ag-urban interface, I would like to describe what we are doing in San Luis Obispo County that is proactive and also what is reactive. Since the early 80s we have gotten more involved in the planning process. I network with an environmental roundtable, an agricultural roundtable, an ag liaison board, a Morro Bay watershed group, and a Williamson Act committee, as well as all applicants for development in and near agriculture. In addition, we have a biological control program and we are trying to develop an IPM innovator program to demonstrate in both urban and agricultural
environments that maybe there are some new technologies that work in at least some circumstances.

Where development is already occurring—subdivision of ag lands, lot line adjustments or general plan amendments such as zoning—we are part of the environmental review process and we try to determine whether or not there is going to be a significant impact on the future of agricultural resources or of those adjacent. (It's a major challenge for the board of supervisors—private property rights versus protecting our agricultural resources. So far, although they waver once in a while, they have come out on the side of protecting the agricultural resources.) We try to mitigate so we don't have to make that CEQA finding of significant impact. We have agricultural buffers, and distance probably is the most effective buffer. And not just horizontal distance; we even look at vertical distance—air flow. We look at screening techniques and many other things.

We are in the position at times of telling someone that they are not going to get their full development potential at this time. We may say, "You're going to have to hold off on those lots next to the fence line until agriculture goes out of business on the adjacent property." We are trying to allow agriculture to continue while minimizing the headaches relative to timing, cultural practices, and pest management. We try to reduce the direct neighbor impact of agriculture, particularly the urban neighbor impact. And we evaluate each site.

When we look at subdivision of agricultural property, we deal with both the ag-urban interface and the loss of prime land. We talk about how large the lots are going to be, what the configuration is going to be, what the number of homes ought to be and their location. If there is development potential on the land we generally feel clusters are better. Right now we are on the hot seat because we were asked by our planning commission: "On how small a piece of land can you have real agriculture?" In general, with what we know and what my crystal ball says about the future, we need to be looking at 60 acres—particular in light of the ag-urban conflict.

We have a right-to-farm ordinance that is a bridge between proactive and reactive. It includes disclosure. The real estate industry helped us develop it so they have in fact been cooperative (but then there's full disclosure, and there's full disclosure). We have a policy statement: As long as agriculture in San Luis Obispo County is carrying out its activities legally and according to proper and accepted customs and standards, it is an important part of the county's economic future.

When in fact we do have conflict, growers are now coming together and developing accepted standards. I don't like boxes, but unfortunately we are having to create some boxes in order to determine when someone is operating outside the right-to-farm ordinance and creating a liability for the rest of the folks in production agriculture. In addition, we have a mediation compo-
nant. They can select me as a mediator, or they can go to an outside mediator. What I have found in mediation is that process and time are extremely important.

We also have a health evaluation assessment team. I sometimes call it the health environmental assessment team, because we deal with a lot of environmental issues. Its purpose is to provide a multidisciplinary panel to coordinate and guide the efforts of various departments and agencies in the systematic evaluation of a suspected environmental hazard—and to assess the impact and identify mitigation measures available to diminish actual and potential hazards. This has enabled us to tap into our state and local agencies at the county level when a citizen brings a problem to us, so that we have a unified approach and we are not overlooking anything. The people who sit on this committee represent public health nursing, the public health laboratory, environmental health and hazardous materials, the air pollution control district, the agricultural commissioner and our health officer. We have added a public information officer. We want to make sure that it is a consistent, non-technical message that the general public can understand.

Some issues we have dealt with include oil spills, refinery plants, power plants, the ag-urban interface (particularly strawberries in our area), industrial contamination, Africanized bees, and ag amnesty days.

We are doing a better job of coordinating the follow through. As soon as we find someone is contacting different county agencies, we come together and try to use our resources efficiently and also fill the gaps where we need additional technical information. Also, the industrial and business community and agriculture are taking greater responsibility for trying to be part of the solution, rather than just saying: “This is my farm. This is where the fence ends.” I see a lot more community spirit, when, for example, we have worked with the grape growers or the strawberry growers or an oil refinery.

I believe we have improved the level of trust and communications between agencies and the public. I would encourage taking a look at a multidisciplinary approach at the local level that gets people who live in the community sharing their concerns and the desire for a healthy environment.

The proactive approach is preferable; voluntary as much as possible. We need to have flexibility and to continue to reevaluate the processes and the players in different situations. What worked in 1989 might not work today for strawberries, for instance. We can’t make everyone happy, but we can address issues to the satisfaction of a majority of the public, the business community, the regulated industry and other agencies. Based on our experience, we can establish credibility, particularly at the local level, and gain acceptance of reasonable outcomes.
What is most important, but often gets neglected, is the communicating—the sharing of ideas. I am going to talk about grassroots approach to conflict resolution and about watershed stewardship. When I say watershed stewardship I mean the people in the watershed; getting together all the players that either affect or are affected by what goes on in the watershed. This goes beyond pesticides and involves all kinds of other things. For example, I was surprised to find that one of the biggest issues, even with the non-ag people, is trespassing—the tourists who come up from the Bay Area and say, “It's so beautiful here. We're just going to have a picnic and go for a hike in the woods.” And leave garbage and park their cars all over the place.

Stewardship means getting the players involved and talking about their interests. In one case I was involved in, the players were almost all grape growers and in another there are a few grape growers and a lot of other people who live in the watershed who frankly are not in love with the grape growers. There's a lot of conflict. Everybody needs to get their interests out on the table, but not everybody understands what an interest is. If someone says, “I don’t think pesticides should be allowed,” that’s more of an attitude or a position. The interest is why they don’t want any pesticides; maybe it’s a health issue or a water quality issue. Maybe it’s the value of their land; they want to make sure the value stays up.

Who is involved in this process? It’s not only the landowners in the area and the people who work there, but it can be people from agencies like EPA or, in our case in Napa County, the Resource Conservation District. The Napa County ag commissioner has been involved also.

One of these programs started because there was an endangered species in the creek that forms a watershed. This was about the time of the spotted owl up in the Pacific Northwest and people were very concerned. And rather than the ag commissioner and the EPA and other regulatory types coming down and telling us what to do, they said: “Why don’t you organize yourselves and come up with a voluntary program that maybe resolves the interests involved here—one of the big issues being the existence of this freshwater shrimp—something that doesn’t require us to come in and regulate you?” It took a while to build up trust, but eventually that did happen and ultimately we came out with a book on how to be a good steward in the Huichica Creek watershed.

The program was so successful that we decided to try another one in the Redwood Creek watershed, an area that is a steep canyon, mostly wooded—
iots of redwoods—and it has a few vineyards, a couple of wineries and some grazing. There has been a lot of conflict there. We had been sued by a neighbor, and there was no progress in sight. I wasn't involved at that point. I remember driving over to their lawyer's office and our lawyer saying "Let me do all the talking." When we got there the tension was pretty thick, but we all started talking and maybe it was because I was new to the whole thing, but by the time we left, we had agreed to meet up at the vineyard and discuss how we could resolve the problems. A year later they invited me over to their house for a New Year's Eve party to drink our wine. I thought, the system worked—the system in this case being just communicating. I couldn't believe how high the wall was; mostly because it had been lawyers talking to each other rather than the people involved just discussing what's the problem here, what can we do about it.

To get the new stewardship program going, we had meetings. We got the addresses of everybody in the watershed and sent them invitations. Predictably, at the first meeting there was a lot of tension and people were complaining about pesticide residues in the water and the erosion from all the vineyards. Somebody pointed out that actually most of the erosion came from roadways that had been cut in the area. Somebody from the Regional Water Quality Control Board said, "I have some money for water quality testing." The group decided to do that and the results showed there weren't any pesticide residues. Actually the biggest problem was coliform counts next to some of the homes along the creek.

This winter we had flooding in Napa County and much natural erosion. We hiked up a canyon with one of the neighbors to where our property begins and I showed her all our erosion control. Then we walked back through her property which had big gullies, and she said, "Maybe I should set up some of these diversions and collectors, too." I think the lesson there was, again, if you just get together, go out and look at the problem, talk about it, look at things, it's amazing what some communication can do.

**DISCUSSION: REDUCING THE CONFLICT**

**ISSUE:** A crucial step is to encourage voluntary interaction and problem-solving at the agriculture-urban interface before restrictive regulatory systems become necessary. For 18 years, a largely voluntary "redline" system has been in place around the city of Fresno to regulate aerial pesticide application near residential areas. What makes that system work?

**Edwards:** This rather informal system developed because we have only a few aerial applicators working close to the city. We got together with them and agreed to impose the redline as though it were a condition on permits, even though you can't actually condition the application of non-restricted materials. The redline is about a half mile from residential development. We
will allow pesticide use within that zone, but we go out and look at the location and may restrict the application to a certain time or wind direction or type of equipment. We often require that one of our staff be there to monitor the job. It’s a type of buffer zone; you must get permission to apply. The redline system has been very effective, and is largely self-regulating. As the years pass, we receive fewer calls about spraying close in, because we’ve already established that we are ordinarily not going to allow it there.

**ISSUE:** If the Fresno “redline” system were formalized into a local ordinance or statewide regulation, would that significantly change the dynamics of its operation?

**Thuner:** There definitely is potential for more paperwork, which is a problem for us. There’s also a question of how much control an ag commissioner has over non-restricted materials. In my county, we’ve pushed that envelope, successfully at times and not at others, but we’ve never been challenged in court. Our Farm Bureau has organized what they called Good Neighbor Training which has had much impact on most growers—although not necessarily on the one or two percent who seem to initiate 99 percent of the problems. I would hope that we can rely more on common sense than on the formal regulatory process.

**ISSUE:** What is the role of local committees set up by the agricultural commissioner’s office to encourage biological pest control and sustainable agricultural practices?

**Greek:** In the mid-1980s, with our increased regulatory program and the registration process for agricultural chemicals, it became clear that we needed somehow to counterbalance that approach. Historically, ag commissioners have been involved in biological control, but we brought it up to a new level. We’ve committed about half a staff member-year plus some interns, and it doesn’t hurt to have a university in your back yard. We’re working with the California Department of Food and Agriculture to actually get the beneficial organisms out in both urban and agricultural settings. We have held one seminar with the help of DPR, and I’m hoping to further facilitate getting the growers together—for example, to share composting resources or discuss new biologic control agents.

**ISSUE:** Agricultural commissioners say they want voluntary cooperation from growers, with the regulatory process as a last resort; but more severe regulatory restrictions on use permits might prevent problems in the first place. When permits allow the use of highly toxic materials close to homes, even the possibility of drift is going to create conflicts. (More people are affected than the few who protest. Many are intimidated by the regulatory structure, and may simply give up and move away.) Furthermore, many of the proposed solutions deal only with substantial drift
from nearby sources. But research has indicated that atmospheric inversions can lead to drift over longer distances, so a simple buffer zone of a quarter or half a mile won't necessarily solve the problem. Isn't there need to focus on some of the larger issues such as ambient air pollution, as well as nearby drift? This may call for significant change in agricultural practices.

**Edwards:** Inversions are a real problem, and not only at the ag-urban interface. We probably have even more complaints involving agriculture and agriculture—for example, herbicide drift onto vegetable crops.

**Sokolow:** Some of these issues go beyond county boundaries and involve entire regions or air basins. Regional air boards are a level of regulatory decision-making that is not represented here today.

**Greek:** When we do follow up and investigate a complaint—whether it's an actual violation or an opportunity to encourage better pest management practices—we have improved the situation not only for the neighbors but for others farther away. We shouldn't underestimate the benefits to both agricultural and urban communities of addressing these problems proactively.

**Berkowitz:** We seem to be talking about resolving conflict rather than solving problems, but I look forward to the day when we can farm not at the expense of public health or the environment or of the economics of farming. We need education and new technologies like self-contained sprayers and better ways of growing. I would like to see money and other resources put into those things, rather than new ways to regulate.

**ISSUE:** Regional air quality boards broadcast warnings on bad smog days, but there is no restriction on spraying. There doesn't seem to be any coordination between ag commissioners and air quality officials.

**Samantha McCarthy:** I'm told not to ride my bike because my health is in danger during bad air quality days. Yet I'm also asked not to drive. Therefore, I'm an air quality prisoner. To reduce the problem, agriculture should be asked or required not to spray during bad air days.

**Edwards:** If you restrict spraying for several days and then concentrate it all on one day, isn't that going to create an even more dangerous situation? We thought about this in dealing with the herbicide issue, but decided it would in fact exacerbate the problem.

**Ronald Oshima:** It is important that we not generalize from one strategy designed to contain air pollutants generated by burning to another strategy that involves pesticides. Pesticide applications are a different source and create a different problem.
ISSUE: Some pesticide problems seem to involve lack of information. Yet for many years, similar issues have been studied (in the San Joaquin Valley for example). It’s ironic that the most substantial research has been concerned with phytotoxicity—damage to someone else’s crop—rather than human health.

Paul Gosselin: Air Resources Board monitoring in the Central Valley, part of the AB 1807 program, is based on pesticide use and weather patterns. It’s in the Central Valley where most atmospheric inversions occur. Many of the situations discussed by the EPA-Industry Spray Drift Task Force draft have essentially the same conditions as in the San Joaquin, where herbicide drift issues have been studied as a result of ag versus ag conflicts. Historically, we’ve dealt with these issues on a localized, product-specific basis, but many elements of the drift problem are similar to situations elsewhere. Also, we can tie data on worker exposure and worker health to what we know about community exposure. In these ways, the knowledge and experience that we do have could fit into the broader context.

ISSUE: What is the relationship of minimum acreage allowed in land preserves to the acreage needed for economic survival of farms?

Thuner: San Diego County has established an ag preserve minimum smaller than the state’s because we value the crop rather than the acreage. In our county, the minimum size of Williamson Act acreages and agricultural preserves is eight or ten acres—which exacerbates the problem. We are trying to preserve the unpreservable. Meanwhile some acreage that is not under the Williamson Act is under much more intense agricultural use than some that is.

ISSUE: Considering the economic pressure on growers, how can tensions at the ag-urban interface be eased?

Medvitz: In Napa County, the agricultural community is recognized as having tremendous economic value, and there is much urban support. In Solano County, we have an urban-ag coalition that opposes urban development outside the city limits. It’s flawed because cities can expand, but it does reduce the interface out in unincorporated areas. Communicating values among groups is important, but the ultimate solution is strategies like these to minimize the ag-urban interface in order to reduce the number of interactions.

ISSUE: It’s difficult to visualize the actual scope of the ag-urban interface, either in terms of actual acreage or of numbers of conflicts. Don’t we need some sort of statewide system that characterizes population, land use planning and land use patterns in order to tell us where some of these problems will occur?

Greek: Our planning department has developed a rural settlement strategy that uses geographical information systems (GIS) so we have an idea of what
the boundary looks like. But the real interface issues are often less related to physical boundaries, and are more political. For example, one vineyardist who misuses bird-control cannons puts the entire local industry at risk of a more restrictive noise-control ordinance. That's the real threat.

**Thuner:** Last year we had four separate ag-urban boards operating simultaneously, and two of them were actually inside cities—where greenhouses had been built before incorporation and now are next to apartment houses. That's an ag-urban interface, but it would not necessarily show up on a GIS system.

**Sokolow:** Also, some interface issues occur in rural areas where there are large-lot residential developments, single homes, small subdivisions or growing unincorporated communities. In a sense, it's more insidious there because it is less visible and there is less control through city or county planning.

**Medvitz:** I would urge better understanding of the complexity of a farmer's problem in dealing with two chaotic systems—the weather and the market. It's reasonable to think of a long-term strategy to change farming processes and still maintain productivity, but it must be in the long term. We face a statewide system problem, but we are going to have to look at the system from the agricultural as well as the urban perspective.
PERSPECTIVES:
SUMMARY AND RECOMMENDATIONS

Alvin D. Sokolow
Mary E. Handel
Harold O. Carter

The specific issues raised by conference participants and summarized in this report are compelling and important to California. They reflect a wide range of viewpoints about problems of the urban-farmland boundary, with emphasis on the complex dilemma of pesticide use. Our purpose here is to summarize central points representing those various viewpoints, to consider the overall problem, and to point out what appear to be promising approaches for policymakers and concerned citizens.

PERSPECTIVES ON THE URBAN EDGE

Regulators, scientists, physicians and planners, as well as citizens and farmers who live daily with the problems, all have roles and viewpoints which were discussed during the conference.

State regulatory perspective. The Department of Pesticide Regulation plays the major state role, interacting with other state agencies that are concerned with pesticide use and its impacts on wildlife, water quality, air quality and other environmental considerations. DPR registers pesticides for use in California following US-EPA registration, and deals with wording of labels and continuing evaluation of registered products. DPR also oversees the local enforcement of pesticide standards and applications.

Local regulatory perspective. Regulatory enforcement occurs primarily at the local level. County agricultural commissioners are on the front line, in direct contact with growers and pesticide applicators and often responsible for responding to citizen complaints. With regard to pesticide use, commissioners enforce laws that address worker safety and check that applications comply with requirements on the pesticide labels. They certify applicators and issue permits, many of which require commissioner discretion in placing special conditions on the permits so the intent of state law can be met. Like other branches of county government, they have limited staff and resources.
**Scientific perspective: toxicology.** Scientists who study the chemistry of pesticides point out that chemicals intended to control pests have enormous benefits in the protection of health and food products. The objective, therefore, may not be to eliminate chemicals entirely as much as to reduce toxicity and exposure—to reduce risk by lowering application rates and using substitute technologies like IPM. Scientists point out that better information is needed on past biology and the effects of exposure; that effective regulation and technological advances depend on good data obtained through monitoring; and that registration of new products is delayed by the testing process.

**Scientific perspective: medicine.** County health officers play an advisory role to the State Department of Health, state legislature, county government and to local physicians. As in other areas of science, good data are required (epidemiology) as the basis for advice and policy. A major task is to educate local physicians, who generally have limited public health backgrounds and limited knowledge of pesticide exposure. The central difficulty is distinguishing illnesses caused by pesticide exposure from those with other causes.

**Health impact perspective of local residents.** Urban neighbors of cropland are very concerned about the impacts of pesticide drift. They often believe that their grievances are not sufficiently considered by public agencies. Applicators may be following the conditions of their permits, but off-site drift still occurs. Critics of the current registration/regulation process believe it is not sufficiently comprehensive because it does not take into account community as well as individual worker exposure. This perspective cites problems with (1) difficulties faced by residents in documenting exposure and getting appropriate action by agencies, (2) physicians' unfamiliarity with pesticide use and symptoms, and (3) slow and inconclusive investigations.

**Grower perspective.** Farmers resent the increased regulation that accompanies complaints from a growing urban population, particularly neighbors who seek country living but have low tolerance and little knowledge of necessary farming activities. These complaints and subsequent regulations often require the farmer to make expensive changes in cultivation and pest control practices. Alternative practices—new technology and new methods of cultivation—are being adopted, but besides increasing farm costs many of these practices are experimental and their effectiveness is uncertain. Farmers have other problems with the increasing urban population at their doorstep as they experience more vandalism, for example, and assume more liability from increased trespassing. Farming practices and the vagaries of a business highly vulnerable to the forces of nature are not understood by the urban public. Commercial agriculture is not simply green open space; it is an industrial activity that in many ways is not compatible with residential land use.

**Urban planning perspective.** Planners seek to head off problems by engaging in long-term planning. Specific techniques include urban limit lines or other boundaries, LAFCO designations of spheres of influence, buffers between urban land uses and agriculture, clearly defined agricultural and open space lands between communities, and right-to-farm ordinances. The
overall approach favored in some localities, such as Yolo County and its cities, is to confine new development to city areas where urban services can best be provided, and to have the county protect agricultural land and production in unincorporated areas. This strategy requires strong city-county cooperation. A realistic planning approach for individual cities is to adjust their view of surrounding farmland so that agriculture is seen not only as a source of open space but also as part of the community's economic base. In the Central Valley particularly, it is important for cities to define their identity in relation to agriculture.

**THE BROADER PROBLEM**

Policy issues at the urban edge in California illustrate today's increasingly complex and sometimes adversarial relationships among individual citizens, interest groups and various levels of government. The state's urban-edge problems are serious, both because much is at stake and because there is much misunderstanding. In regard to pesticide use, for example, many citizen activists are frustrated, suspecting that agencies are not acting with urgency and are merely trying to alleviate the problem—or at least the controversy—rather than solve it. Meanwhile, growers, under pressure by the regulatory system and economic forces, believe that urbanites don't understand the difficulties and the realities associated with food and fiber production—their livelihood.

In defining the overall problem, it seems to us that two assumptions are reasonable:

- The use of chemicals in food and fiber production will not be entirely eliminated.

- Regulations that affect the practices of agricultural producers to ensure food, environmental and worker safety will not be entirely eliminated.

Thus, there will be no quick fix as we seek solutions to the problems of the urban-agricultural interface.

An underlying issue is the conflict of legitimate values. Farmland can be viewed, accurately, as both open space and a site for a unique industry. A major task, however, involves educating California's urban citizens—the majority of the population—away from the conventional view of farmland as a bucolic rural landscape conducive to residential lifestyles.

On the other hand, growers will need to actively cooperate and communicate with their urban neighbors as the California population continues to increase. Agriculture will need to continue its trend toward sustainable farming practices, which will result in less impact on the environment and may alleviate some of the concerns of urban neighbors.
PERSPECTIVES:
SUMMARY AND RECOMMENDATIONS

Alvin D. Sokolow
Mary E. Hancel
Harold O. Carter

The specific issues raised by conference participants and summarized in this report are compelling and important to California. They reflect a wide range of viewpoints about problems of the urban-farmland boundary, with emphasis on the complex dilemma of pesticide use. Our purpose here is to summarize central points representing those various viewpoints, to consider the overall problem, and to point out what appear to be promising approaches for policymakers and concerned citizens.

PERSPECTIVES ON THE URBAN EDGE

Regulators, scientists, physicians and planners, as well as citizens and farmers who live daily with the problems, all have roles and viewpoints which were discussed during the conference.

State regulatory perspective. The Department of Pesticide Regulation plays the major state role, interacting with other state agencies that are concerned with pesticide use and its impacts on wildlife, water quality, air quality and other environmental considerations. DPR registers pesticides for use in California following US-EPA registration, and deals with wording of labels and continuing evaluation of registered products. DPR also oversees the local enforcement of pesticide standards and applications.

Local regulatory perspective. Regulatory enforcement occurs primarily at the local level. County agricultural commissioners are on the front line, in direct contact with growers and pesticide applicators and often responsible for responding to citizen complaints. With regard to pesticide use, commissioners enforce laws that address worker safety and check that applications comply with requirements on the pesticide labels. They certify applicators and issue permits, many of which require commissioner discretion in placing special conditions on the permits so the intent of state law can be met. Like other branches of county government, they have limited staff and resources.
Scientific perspective: toxicology. Scientists who study the chemistry of pesticides point out that chemicals intended to control pests have enormous benefits in the protection of health and food products. The objective, therefore, may not be to eliminate chemicals entirely as much as to reduce toxicity and exposure—to reduce risk by lowering application rates and using substitute technologies like IPM. Scientists point out that better information is needed on pest biology and the effects of exposure; that effective regulation and technological advances depend on good data obtained through monitoring; and that registration of new products is delayed by the testing process.

Scientific perspective: medicine. County health officers play an advisory role to the State Department of Health, state legislature, county government and to local physicians. As in other areas of science, good data are required (epidemiology) as the basis for advice and policy. A major task is to educate local physicians, who generally have limited public health backgrounds and limited knowledge of pesticide exposure. The central difficulty is distinguishing illnesses caused by pesticide exposure from those with other causes.

Health impact perspective of local residents. Urban neighbors of cropland are very concerned about the impacts of pesticide drift. They often believe that their grievances are not sufficiently considered by public agencies. Applicators may be following the conditions of their permits, but off-site drift still occurs. Critics of the current registration/regulation process believe it is not sufficiently comprehensive because it does not take into account community as well as individual worker exposure. This perspective cites problems with (1) difficulties faced by residents in documenting exposure and getting appropriate action by agencies, (2) physicians’ unfamiliarity with pesticide use and symptoms, and (3) slow and inconclusive investigations.

Grower perspective. Farmers resent the increased regulation that accompanies complaints from a growing urban population, particularly neighbors who seek country living but have low tolerance and little knowledge of necessary farming activities. These complaints and subsequent regulations often require the farmer to make expensive changes in cultivation and pest control practices. Alternative practices—new technology and new methods of cultivation—are being adopted, but besides increasing farm costs many of these practices are experimental and their effectiveness is uncertain. Farmers have other problems with the increasing urban population at their doorstep as they experience more vandalism, for example, and assume more liability from increased trespassing. Farming practices and the vagaries of a business highly vulnerable to the forces of nature are not understood by the urban public. Commercial agriculture is not simply green open space; it is an industrial activity that in many ways is not compatible with residential land use.

Urban planning perspective. Planners seek to head off problems by engaging in long-term planning. Specific techniques include urban limit lines or other boundaries, LAFCO designations of spheres of influence, buffers between urban land uses and agriculture, clearly defined agricultural and open space lands between communities, and right-to-farm ordinances. The
overall approach favored in some localities, such as Yolo County and its cities, is to confine new development to city areas where urban services can best be provided, and to have the county protect agricultural land and production in unincorporated areas. This strategy requires strong city-county cooperation. A realistic planning approach for individual cities is to adjust their view of surrounding farmland so that agriculture is seen not only as a source of open space but also as part of the community's economic base. In the Central Valley particularly, it is important for cities to define their identity in relation to agriculture.

THE BROADER PROBLEM

Policy issues at the urban edge in California illustrate today's increasingly complex and sometimes adversarial relationships among individual citizens, interest groups and various levels of government. The state's urban-edge problems are serious, both because much is at stake and because there is much misunderstanding. In regard to pesticide use, for example, many citizen activists are frustrated, suspecting that agencies are not acting with urgency and are merely trying to alleviate the problem—or at least the controversy—rather than solve it. Meanwhile, growers, under pressure by the regulatory system and economic forces, believe that urbanites don't understand the difficulties and the realities associated with food and fiber production—their livelihood.

In defining the overall problem, it seems to us that two assumptions are reasonable:

- The use of chemicals in food and fiber production will not be entirely eliminated.
- Regulations that affect the practices of agricultural producers to ensure food, environmental and worker safety will not be entirely eliminated.

Thus, there will be no quick fix as we seek solutions to the problems of the urban-agricultural interface.

An underlying issue is the conflict of legitimate values. Farmland can be viewed, accurately, as both open space and a site for a unique industry. A major task, however, involves educating California's urban citizens—the majority of the population—away from the conventional view of farmland as a bucolic rural landscape conducive to residential lifestyles.

On the other hand, growers will need to actively cooperate and communicate with their urban neighbors as the California population continues to increase. Agriculture will need to continue its trend toward sustainable farming practices, which will result in less impact on the environment and may alleviate some of the concerns of urban neighbors.
PROMISING APPROACHES

While the viewpoints on the urban-agricultural conflict reflected at the workshop varied widely, there was general agreement that it is worth the effort to find workable solutions. Letting the conflict rage perpetuates frustration and leads to short-range land use planning and, eventually, the loss of valuable farmland. In this case, no one wins.

Future progress in resolving issues at the urban-agricultural edge will require two different approaches: (1) the advances of scientific research and data collection, leading to greater understanding of pest behavior and improved pesticide technology and (2) individual and group actions to improve policy and the regulatory process.

Both approaches require long-term efforts:

- Research and technology to better monitor and understand actual impacts at the urban edge—pesticides in particular—and to develop alternative farming practices.

- Long term planning and community design to reduce friction between urban and agricultural land uses, and to protect our farmlands from residential development.

Of course, the success of such long-term approaches depends on the political will of local and state governments and on citizen support.

In the short run, other steps can be taken. Opportunities exist to complement or reduce the emphasis on regulations by more flexible and open techniques at the community level. We have in mind voluntary and proactive steps that are open to citizen participation and cooperation, and can serve to create and maintain good neighbors across the ag-urban edge. Examples of innovative local programs highlighted in the final part of the workshop include:

- Guidelines for siting farm animal facilities.

- Voluntary compliance beyond the letter of the law for pesticide applicators.

- City-county and citizen-agency task forces on edge issues.

- Early involvement of the agricultural commissioner in the planning stages of new residential development in or near agricultural areas.

- Citizen-agency cooperation in specific neighborhoods such as small bioregions.

- Protection of farmland by adequate buffers between commercial agriculture and residential development.
Despite the emphasis on community action, the process cannot be entirely decentralized. The state must play a proactive role with a broad viewpoint that extends to issues of planning and land use. It's no secret that residential development and agriculture compete for land and resources. Eventually, we will reach a point, if we haven't already, where we need to answer an important question: Can California continue to accommodate a growing population and maintain significant agricultural production? State government has purposely handed over the power to make decisions on land use issues to local governments. Perhaps it is time for the state to give serious attention to growth management issues, including the protection of valuable resources for food and fiber production. This would involve addressing the conflict at the urban-agricultural edge from a land use perspective.

The state could also increase its efforts in the educational and regulatory arenas. For example, DPR, CDFA and other state agencies could:

- Collect and disseminate the lessons of successful regulatory programs at the local level, providing a description of workable community programs.

- Develop a handbook for agricultural commissioners and public health officers as a tool to coordinate pesticide use, community safety, and public agency response.

- Provide more information to health officers on specific pesticides—the testing process, optimum and common conditions of use, toxicity, and other characteristics.

- Sponsor community workshops or forums in collaboration with local agencies.

- Provide to citizens simple, clear information about where to go and what to do in cases of perceived exposure to pesticides.

- Provide an informational “hot line” to help clear up issues and possible misunderstandings as quickly as possible.

- Support education programs that help the urban population connect with the sources of their food and fiber.

**CONCLUSION**

One conclusion to be drawn from the conference is that future action, at either state or local levels, should be based on today's successful experiences. Problems of the urban-agriculture interface are far from being solved in California, but we have evidence that some problems can be addressed effectively in particular situations. Indeed, much of the day-long discussion of “edge” problems reported here has simply reiterated the need to replace
confrontation with concern and communication. Clearly, the conflict between farmers and urban neighbors reflects valid concerns on both sides. If all parties, including appropriate government agencies and departments, work cooperatively, we have the greatest chance for developing a range of successful solutions to the issues of the edge.
FOR FURTHER READING


University of California Agricultural Issues Center. *Farmers and Neighbors at the Edge,* a video (10 mins.), 1995.


BEGINSPROMPTLYAT8:30A.M.

I. Introduction

We will open with a brief background of the issue.

Welcome and Introductions
Harold O. Carter, Director, University of California Agricultural Issues Center
Mary E. Handel, Workshop Coordinator

Video: Farmers and Neighbors at the Edge

II. Pesticide Use and the Regulatory Framework

We will describe pest control and its evolution and briefly cover the use of pesticides in our society. We touch upon pesticide safety and explain the regulatory pathway for pesticides and their use, including the roles of the various agencies that are involved in regulating pesticides. A citizen-supported group concerned with pesticide use will address its perspective on the regulatory framework and pesticide safety.

Moderator: Arthur L. Craigmill, Toxicology Extension Specialist, Department of Environmental Toxicology, University of California, Davis.

A. An Overview of Pest Control and Pesticide Use

Michael W. Stimmann, Statewide Pesticide Coordinator, University of California.

B. The Regulatory Framework: Authority and Responsiveness

1. Tobi Jones, Special Assistant, California Department of Pesticide Regulation.

2. Joan Clayburgh, Director, Pesticide Watch.

C. The moderator will take questions and open up for discussion. (30 minutes)

SHORTBREAK(10:00-10:15A.M.)

WorkshoppresentedwithfinancialsupportfromtheDepartmentofPesticideRegulation(CalEPA)andthecaliforniaDepartmentofFoodandAgriculture.
III. The Agricultural Interface

This session will present the perspectives of the people involved in agriculture and the people responsible for regulating some agricultural activities. We will cover the effect of regulations and urban uses on decisions and activities that occur on agricultural land.

Moderator: Philip P. Osterli, Director, UC Cooperative Extension, Stanislaus County.

A. Farming in an Urbanized Setting

1. Steve Borchard, J. A. Borchard Inc. and M & S Leveling
   A tomato, corn and wheat farmer in Yolo County

2. Brad Lange, Lange Twins Vineyard Management Company
   A winegrape grower in San Joaquin County

3. Albert G. Medvitz, Montezuma Hill Ranch
   A sheep and grain farmer in Solano County

B. The Role and Perspective of an Agricultural Commissioner

Frank E. Carl, Agricultural Commissioner, Sacramento County and President, County Agricultural Commissioners Association.

C. The moderator will take questions and open up for discussion. (30 minutes)

BREAK FOR LUNCH (11:30 A.M. - 12:45 P.M.)
We will take a brief walk to the University Club for lunch.

IV. The Urban Interface

This session will present the perspectives of people involved in making land use decisions that involve urban uses next to agriculture to help understand how to avoid potential conflicts between urban and agricultural land uses. What it is like to live next to agriculture and some potential solutions to address the concerns of urban residents will be discussed from a citizen's perspective. In addition, issues that affect the health of the community, particularly citizens who may be affected by standard agricultural practices, will be addressed from the perspective of the county health officer.

Moderator: Alvin D. Sokolow, Public Policy Specialist, Cooperative Extension, University of California, Davis.

A. City Growth and Living Next to Agriculture

1. Steven Sharpe, Executive Officer
   Sonoma County Local Agency Formation Commission (LAFCO)

2. Janet M. Ruggiero, Director
   Woodland Community Development Department

3. George Rauh
   Volunteers For a Healthy Valley (in Lompoc)
B. The Role and Perspectives of the County Health Officer

Elliot Schulman, M.D., Santa Barbara County Health Officer/Medical Director and President, California Conference of Local Health Officers.

C. The moderator will take questions and open up for discussion. (30 minutes)

SHORT BREAK (2:00 - 2:15 P.M.)

V. Reducing the Conflict: Current Approaches

Our goal in this session is to present some innovative ways to reduce the urban/agricultural conflict that is often beyond the traditional regulatory approach. We will hear from a University Extension specialist, a grower, and several agricultural commissioners. Because the agricultural commissioner is the neutral person who operates under State Code and must enforce the laws that regulate the agricultural industry to ensure a safe environment for all citizens of the community, he/she has a strong motivation to find ways to reduce conflicts. Specific situations that involve innovative approaches to resolving conflicts will be explored from both urban and agricultural viewpoints.

Moderator: Alvin D. Sokolow, Public Policy Specialist, Cooperative Extension, University of California, Davis.

A. Fresno County

1. John C. Voris, Area Turkey Specialist
   University of California, Kearney Agricultural Center

2. Douglas N. Edwards, Deputy Agricultural Commissioner, Fresno County

B. San Diego County

Kathleen A. Thuner, Agricultural Commissioner, San Diego County

C. San Luis Obispo County

1. Richard Greek, Agricultural Commissioner, San Luis Obispo County

2. Bob Lilley, Assistant Agricultural Commissioner, San Luis Obispo County

D. Napa County

Zach Berkowitz, Vice President of Vineyard Operations, Domaine Chandon

E. The moderator will take questions and open up for discussion. (30 minutes)

VI. Wrap Up: Lessons Learned

Mary E. Handel
Alvin D. Sokolow
Harold O. Carter

ADJOURN AT 4:30 P.M.
ZACH BERKOWITZ is vice president of vineyard operations for Domaine Chandon. Previously he was vineyard manager for Chandon's Carneros Ranch for 16 years. He is a member and past president of the Napa Valley Vineyard Technical Group, the North Coast Viticultural Research Group and the Carneros Quality Alliance. His current involvement with sustainable agriculture includes the Huichica Creek Land Stewardship, Trout 2000 Stewardship Program and the Partnership for the San Pablo Baylands. In 1994, he was named the Napa County Resource Conservation District Cooperater of the Year. He has a BA degree in sociology from UCLA and a BS degree in plant science from UC Davis.

STEVE BORCHARD has been farming with his brother on the family's farm, J. A. Borchard, Inc., in the Woodland area for the past eight years. Previously, he worked for a produce grower/shipper. He has been a director of the Yolo County Farm Bureau and won a seat on the Woodland City Council in 1994. He also established a land-leveling service four years ago, M&S Leveling, that serves the area's agriculture. He graduated from Cal Poly, San Luis Obispo, with a BS in Agricultural Management.

FRANK E. CARL, Sacramento County agricultural commissioner since 1990, has worked since 1973 for various county agricultural departments, briefly in Yuba County before moving to Merced, later to Yolo and finally to Sacramento. He has worked on a variety of interface issues and with the Agricultural Advisory Committee which makes recommendations on county right-to-farm issues. He is currently president of the California Agricultural Commissioners and Sealers Association. He graduated from California State University, Chico, with a BS in agricultural science.

HAROLD O. CARTER is director of the Agricultural Issues Center and professor emeritus in the Department of Agricultural Economics, UC, Davis. He was elected fellow of the American Agricultural Economics Association, served as chair of the UC World Food Task Force, as senior staff economist of the US Council of Economic Advisers, and as co-director of the Economics Project of the UC-Egypt Program. His bachelor's and master's degrees are from Michigan State University; he received his Ph.D. from Iowa State University.

JOAN CLAYBURGK has served as the director of Pesticide Watch and the Pesticide Watch Education Fund since 1991. During this time, she created The Crop Duster, a quarterly newsletter distributed to pesticide activists, and built the Community Action Project to keep in contact with a network of over 200 community leaders around the state. Previously, she worked for five years with the Public Interest Research Groups (PIRGs) in a range of positions including campus organizer and statewide program coordinator for CALPIRG. She is a 1985 graduate of UC, San Diego.
ARTHUR L. CRAIGMILL has been extension specialist in toxicology in the Department of Environmental Toxicology, UC, Davis, since 1980. Previously he was assistant professor of pharmacology, College of Veterinary Medicine, Oklahoma State University; consultant for Franklin Institute Research Laboratory; and assistant professor of pharmacology and toxicology at the College of Pharmacy, Washington State University. He is a member of the Society of Toxicology, having served as chair of its committee on public communications, and of other veterinary pharmacology societies. He received his Ph.D. from the University of Minnesota in 1972.

DOUGLAS N. EDWARDS has worked for the Fresno County Department of Agriculture since 1977, and has been deputy agricultural commissioner/sealer since 1989. He has administrative responsibility for Fresno County's pesticide use enforcement program. He received his BS degree in entomology from UC, Davis, in 1974.

RICHARD GREEK, San Luis Obispo County agricultural commissioner/sealer, administers a department of 40-plus employees. He is active in the California Agricultural Commissioners and Sealers Association, and in the National Conference onWeights and Measures. He has been involved in agricultural regulatory programs since 1972. He received his BS in biological sciences from Cal Poly Pomona.

MARY E. HANDEL has been involved in agriculture and land use issues for the past 20 years. She served for six years as the executive director of the Napa County Farm Bureau and Napa Valley Grape Growers Association. She recently completed an MS in community development at UC, Davis. Her thesis is titled Conflicts and Solutions When Agricultural Land Meets Urban Development. She has her own land use research and consulting firm, and is a member and past chair of the Napa County Planning Commission. Her undergraduate degrees are from California State University, Chico.

TOBI JONES, special assistant in the Department of Pesticide Regulation, California Environmental Protection Agency, is responsible for special projects and public outreach. She has been with California's pesticide regulatory program for 13 years, formerly serving as chief of the Pesticide Registration Branch. Dr. Jones chairs a national committee of state pesticide regulatory officials which consults with the US Environmental Protection Agency on pesticide registration issues. She obtained her BA in microbiology from the University of Kansas and her Ph.D. in microbiology from Northwestern University.

BRAD LANGE has farmed for the last 25 years with his brother; they farm 2,300 acres of winegrapes. He was the first chairman of the Lodi-Woodbridge Winegrape Commission and continues to serve as a commissioner. He is a member of the Habitat Conservation Plan Policy Committee for San Joaquin County, working to develop a multi-species habitat plan for the county. He is a director on the Lodi Memorial Hospital Board.
BOB LILLY is assistant agricultural commissioner for San Luis Obispo County. He is a graduate of Class XXII of the California Agricultural Leadership Program and received a special achievement award from CDFA and the California Agricultural Commissioners and Sealsers Association in 1990 for work in land use planning and nuclear emergency planning for agriculture. He received a BS in ornamental horticulture and a MS in agricultural science from Cal Poly, San Luis Obispo.

ALBERT G. MEDVITZ ranches with his wife, Jeanne McCormack, and father-in-law, Wally McCormack, in the Montezuma Hills outside Rio Vista. They raise wheat, barley, safflower, lamb and wool. Before turning to farming eight years ago, he was an assistant professor of science, director of a teaching laboratory, and a senior research associate at Boston University. He has been an elementary school teacher in Massachusetts and has lived and worked for more than six years in Africa, in Nigeria as a Peace Corps volunteer, in Ghana as a Sheldon Traveling Fellow from Harvard University, and in Zambia as a technical adviser to non-government and voluntary organizations. He has been a science adviser and organization development consultant to several international education and development organizations, including the United Nations. He is active in Solano County on matters of land use, hazardous waste, and sewage sludge disposal. He has a BS in physics from UCLA, a Master of Arts in Teaching from Harvard, and a Ed.D. degree in administration, planning and social policy from Harvard.

PHILIP P. OSTERLÍ has been county director of UC Cooperative Extension in Stanislaus County since 1986. He has administrative responsibility for 13 advisors and support staff. Previously, he was farm advisor in Stanislaus County for vegetable crops, dry beans and sugar beets, and a research associate in the Agronomy Department, UC, Davis. He is a director of the California Crop Improvement Association, serves on various other boards and associations, and is a member of the American Society of Agronomy and charter member of the California chapter of the ASA. He has received numerous recognitions and awards, including the merit award from the California Soil and Water Conservation Society.

GEORGE RAUH, a UC, Berkeley, graduate with a BA in social sciences, teaches adult education English and substitutes at the high school level. Two years after moving to Lompoc in 1989, he found his health declining for no apparent reason. Discussions with friends revealed a pattern of illness that suggested pesticide exposure as the cause. In early 1992, he and several friends founded Volunteers for a Healthy Valley to bring the pesticide problem to light and effect the needed changes. VHV has since become a statewide leader in highlighting the ag-urban pesticide conflict.

JANET M. RUGGIERO has been community development director of the city of Woodland for 15 years. Previously she worked for Yolo County and for the city of Mountain View. She served a four year term as a board member of the National American Planning Association, where she chaired the National/State Policy Coordinating Committee. She had previously served as president and vice-president of the California Chapter, APA, and also is a member of California Planning Roundtable. In 1995 she received the Distinguished Service Award from the National APA. She has been very active in the area of planning legislation, especially growth
management and regional issues. She received a BS in social sciences from Santa Clara University, and a masters degree in urban and regional planning from San Jose State University.

ELLIO T SCHULMAN, MD, is president, California Conference of Local Health Officers, and medical director and health officer of Santa Barbara County Health Care Services. He also serves as medical director of Santa Barbara County's sexual assault response team, the Harbor/UCLA Medical Center Child Sexual Abuse Crisis Center and the Stewart House/Lerimar Clinic Santa Monica Hospital. Previously, he served as physician or medical director in various hospitals, clinics and agencies in Southern and Central California. He received a BA from State University of New York at Buffalo and graduated from medical school there in 1974.

MICHAEL W. STIMMANN has been statewide pesticide coordinator for UC Cooperative Extension since 1979, and also extension pesticide specialist at UC, Davis, since 1988. He is a lecturer in the UC Department of Environmental Toxicology. He received his BA in biology from San Jose State College, and his MS and Ph.D. degrees in entomology from Oregon State University.

STEVEN SHARPE has been executive officer of the Sonoma County LAFCO since 1992. Previously, as a planner in the Sonoma County Planning Department, he was geothermal coordinator, aggregate resources manager, and agricultural preserve program manager. He is co-author of the Sonoma County General Plan and EIR, and author of the Sonoma County subdivision ordinance. He received his BS in environmental planning and management from UC, Davis, in 1974.

ALVIN D. SOKOLOW is currently a public policy specialist with UC Cooperative Extension. Formerly, as a professor of political science at the UC Davis campus for 27 years, he taught courses in local government and community politics, California politics, and American Federalism. His outreach and research activities focus on community governance. Currently he is conducting a study of farmland protection and related land use and growth issues in California's Central Valley.

KATHLEEN A. THUNER, San Diego County Agricultural Commissioner/Sealer, was appointed to that position in 1983—the first woman agricultural commissioner in California's history. Formerly she was an agricultural biologist in Alameda and Sonoma Counties, and deputy agricultural commissioner in Santa Barbara County. She serves on numerous boards, task forces and committees in Southern California. She received a BS in biology from Santa Clara University, and did her graduate studies in invertebrate zoology and entomology at Florida State University and Sonoma State University.

JOHN C. VORIS is area turkey specialist for UC Cooperative Extension, with research interests in turkey management, waste management, nuisance abatement and composting. His current research involves composting of mortality, crop application of compost and using the composting process to degrade pesticides. He formerly worked for Nicholas Turkey Breeding Farms for 25 years. He is involved with the California Turkey Forum with special emphasis in resolving land use conflicts by helping industry develop siting and management guidelines.
Farmers and Neighbors: Land Use, Pesticides, and Other Issues
List of Participants

Zach Berkowitz
Vice President-Vineyards
Domaine Chardon, Yountville

George Farnsworth, Division Assistant
Div. of Registration, Health & Evaluation, DPR
Cal-EPA

Steve Borchard
J.A. Borchard Inc. and M & S Leveling
Woodland, CA

Steve Forsberg
Western Crop Protection Association
Sacramento, CA

Valerie Brown, Chief
Office of Pesticide Consult. and Analysis
California Department of Food and Agriculture

John R. Gamper
California Farm Bureau Federation
Sacramento, CA

Dave Campbell
Economic & Public Policy Analyst
UC Sustainable Ag. Res. and Ed. Program

Paul Gosselin, Assistant Director
Department of Pesticide Regulation
Cal-EPA

Frank E. Carl
Agricultural Commissioner
Sacramento County

Richard Greek
Agricultural Commissioner/Sealer
San Luis Obispo County

Harold O. Carter, Director
UC Agricultural Issues Center

Mary Handel
Workshop Coordinator and
Napa County Planning Commissioner

Joan Clayburgh, Executive Director
Pesticide Watch
San Francisco, CA

Mark Hite
Principal Consultant
Senate Agriculture and Water Committee

Ray Coppock
Communications Specialist
UC Agricultural Issues Center

Desmond Jolly, Director
UC Small Farm Center

Art Craigmill
Toxicology Specialist
Environmental Toxicology, UC Davis

Tobi Jones, Special Assistant
Department of Pesticide Regulation
Cal-EPA

John Donahue, Branch Chief
Worker Health and Safety Branch, DPR
Cal-EPA

Shirley King
Citizens Against Pesticide Exposure (C.A.P.E.)
Warner Springs, CA

Doug Edwards
Deputy Agricultural Commissioner/Sealer
Fresno County

Bob Krauter
California Farm Bureau Federation
Sacramento, CA
List of Participants (cont’d)

Marcia Kreith
Program Analyst
UC Agricultural Issues Center

Richard Kreutzer, M.D.
Div. of Environ. & Occup. Disease Control
California Dept. of Health Services

Brad Lange
Lange Twins Vineyard Management Co.
Acampo, CA

Betsy Marchand
County Supervisor
Yolo County

Samantha McCarthy, Co-Director
Regional Environmental Advocacy Project
Davis, CA

Albert G. Medvitz
Montezuma Hill Ranch
Rio Vista, CA

Dan Merkley
County Ag. Commissioner’s Liaison
Dept. of Pesticide Reg., Cal-EPA

Jeanne Merrill, Field Organizer
Pesticide Watch
San Francisco, CA

Ronald J. Oshima, Assistant Director
Department of Pesticide Regulation
Cal-EPA

Philip P. Osterli
Director
Stanislaus County Cooperative Extension

Dennis Pelucca
P.C.A. C. CA.

Randy Pollack
Assembly Committee on Agriculture
Sacramento, CA

George Rauh
Volunteers For a Healthy Valley
Lompoc, CA

Claudia Reid
State/Local Gov’t Rel. Coordinator
UC Div. Agriculture and Natural Resources

Antero Rivasplata
Chief, State Clearinghouse
Governor’s Office of Planning and Research

Janet Ruggiero, Director
Community Development Dept.
City of Woodland

Karen Salkind
U.S. Environmental Protection Agency, Reg. IX
San Francisco, CA

Bob Schneider
Developer & Sierra Club California Ag. Chair
Davis, CA

Elliot Schulman, M.D.
County Health Officer/Medical Director
Santa Barbara County Health Services

Steven Sharpe
Executive Officer
Sonoma County LAFCO

Alvin D. Sokolow
Public Policy Specialist
Human and Community Develop., UC Davis

Michael Stimmann
UC Statewide Pesticide Coordinator
List of Participants (cont'd)

Kathy Taylor, Branch Chief
Pesticides and Toxics Branch
US EPA-Region IX

Kathleen Thuner
Agricultural Commissioner
San Diego County

Ken Trott
Office of Land Conservation
California Department of Conservation

Nita Vail, Director
Natural Resource and Environ. Planning
California Department of Food and Agriculture

John C. Voris
Area Turkey Specialist
UC Kearney Agricultural Center

Stephanie Weber Smith
Program Analyst
UC Agricultural Issues Center

Dave Whitmer
Agricultural Commissioner
Napa County

Joy Wisniewski
Staff Toxicologist, Office of Environmental Health Hazard Assess., Cal-EPA
The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a Vietnam-era veteran or special disabled veteran. The University also prohibits sexual harassment.

Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6th Floor, Oakland, CA 94612-3560, (510) 987-0096.