Public Opinion in Oregon About the Use of Chemicals on Food Crops

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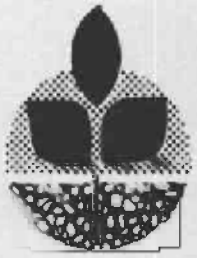

Agricultural Experiment Station
Oregon State University, Corvallis

PUBLIC OPINION IN OREGON ABOUT THE USE OF CHEMICALS ON FOOD CROPS

Robert Mason

Survey Research Center

SUMMARY AND CONCLUSIONS

A sample survey of 602 noninstitutionalized Oregon adults showed that 53 percent favored the use of agricultural chemicals (fertilizers, weed and insect sprays) on food crops, 42 percent opposed and 5 percent were undecided.

Ninety-five percent of those who favored the use of farm chemicals believed they increased food production. About 15 percent of this group, however, also held beliefs inconsistent with support for agricultural chemicals. These people also believed chemicals were harmful to human health, impaired food quality, or did not keep food prices from going higher than they might otherwise and may be a group that will change opinions once more information becomes available or if they think more about the issue.

Ninety-two percent of those who opposed the use of farm chemicals believed they were harmful to human health. About 36 percent of this group, however, also held beliefs inconsistent with their opposition to farm chemicals. These people also believed that chemicals increased food production, improved food quality, or kept food prices from going higher than they might otherwise and may be a group that will change opinions once more information becomes available or if they think more about the issue.

The issue of agricultural pesticides in the environment seems to be well-established in the public's mind and appears to present a trade-off to the public at this time: food production vs. human health. A majority of the public now seems to select food production as the greater benefit but there is no reason to expect this preference to continue. One may infer support for the concept of integrated pest management, although the idea has not been tested directly. Nor has the public's knowledge or information level been ascertained so one does not know how strongly opinions and beliefs are anchored to a well-developed knowledge base or if any voting on the pesticide issue will be an informed one.

INTRODUCTION

It is hardly news that some technical innovations farmers have used routinely for 30 years have become controversial and have been discontinued or are threatened with discontinuance. Examples in the last few years have been banning use of the insecticide DDT (as well as many others) and the continued attack from many quarters concerning the use of phenoxy herbicides. Use of diethylstilbestrol (DES) in animal feed has been suspended and the use of antibiotics in animal feed has become controversial. As well, the multiple use concept of public lands in the West, once widely accepted in principle, is now subject to controversy in its implementation. Farmers in many areas of the country, including Oregon, no longer engage freely in practices that are thought necessary to produce inexpensive, nutritious food without strict regulation by federal and state agencies.[1/]

1/ See publications of the Council for Agricultural Science and Technology (1975, 1977a, 1977b, 1978a, 1978b) for discussions concerning the discontinuance of selected agricultural practices.

A case in point is the use of chemicals, such as fertilizers and weed and insect sprays, on food crops. Although much objective information about the effectiveness of these chemicals and their impact on human health or the environment is available, the decision of continuance or discontinuance soon may rest with the voting public.

It is in this vein, therefore, that assessments of public beliefs and opinions concerning the use of agricultural chemicals become important. The concern here is that once these issues are put to a vote, that voting is informed and, hopefully, is based on a careful consideration of the most accurate scientific information available.

The purpose of this report is to describe the results of a survey concerning public perceptions of the use of chemicals on food crops in Oregon. A random (area probability) sample of 602 noninstitutionalized adults was interviewed between November 15 to 30, 1979, in face-to-face interviews in their homes. Sample was proportional to population in the state. Respondents were asked: 1) if they were aware that agricultural chemicals were used for growing food crops in the state, 2) whether these chemicals increased or decreased food production, 3) if they improved or impaired food quality, 4) if they were harmful or not harmful to human health, and 5) if they thought these chemicals kept food prices from going higher than they might otherwise. We also asked them if they favored or opposed the use of agricultural chemicals for food production in Oregon. Finally, respondents were asked questions about their background, such as their age, education, occupation, household income, etc.

RESULTS AND DISCUSSION

We found that a majority of Oregonians favors the use of agricultural chemicals for food production. Fifty-three percent of the sample said they favor the use of agricultural chemicals, 42 percent were opposed, and 5 percent said they were undecided. Only two demographic variables were related to opinions -- a respondent's age and sex. Higher proportions of young people and women opposed the use of these chemicals, compared to older individuals and men. These results are shown in Table 1.

Table 1. Relationship between age, sex and opinions concerning the use of agricultural chemicals

Variable	Strongly favor	Favor	Oppose	Strongly favor	DK	Total	(N)
	%	%	%	%	%	%	
Age:							
18 - 29	5	33	43	14	5	100	(150)
30 - 44	8	45	33	10	4	100	(170)
45 - 50	14	47	22	12	5	100	(141)
60 or over	12	49	23	10	6	100	(141)
Sex:							
Male	11	49	24	12	4	100	(312)
Female	8	37	38	11	6	100	(290)
Total	9	44	31	11	5	100	(602)

X^2 for age and opinion: 29.08, 12 df; $p < .01$.

X^2 for sex and opinion: 17.10, 4 df; $p < .01$.

We also found that 91 percent of those interviewed said they were aware of the use of these chemicals. An overwhelming majority -- 86 percent -- believes that agricultural chemicals increase food production, 6 percent said they do not, and 8 percent said they did not know or gave an equivocal response. However, 38 percent said these chemicals impair food quality, 36 percent said they improve food quality, 16 percent said they have no effect, and 10 percent were undecided. A total of 56 percent believe the use of agricultural chemicals on food crops is harmful to human health, 33 percent say it is not, and 11 percent are undecided. Forty-eight percent believe these chemicals keep food prices from going higher than they might otherwise, 42 percent believe they do not, and 10 percent are undecided.

Opinions based on inconsistent beliefs

Additional analysis shows many of these beliefs are related to an opinion about the use of chemicals, but the relationship is far from perfect. For instance, 37 percent of those who believe the use of these chemicals increases food production still oppose their use. As well, 21 percent of those who thought chemicals improve food quality opposed their use, and 30 percent who felt that chemicals kept food prices from going higher than they might otherwise also oppose their use. The data in Tables 2 - 5 show the percentage who hold different beliefs and who favor or oppose the use of agricultural chemicals.

Table 2. Relationship between perceived effect of pesticides on food production and opinions about their continued use

Variable	Strongly favor	Favor	Oppose	Strongly oppose	DK	Total	(N)
	%	%	%	%	%	%	
Increases production	10	48	30	8	4	100	(517)
Decreases production	5	8	43	38	5	100	(37)
Other	0	42	17	33	8	100	(12)
DK	3	14	50	19	14	100	(36)
Total	9	44	31	11	5	100	(602)

X^2 = 66.75, 8 df; p <.01. (Cases in "other" row deleted)

Table 3. Relationship between perceived effect of pesticides on food quality and opinions about their continued use

Variable	Strongly favor	Favor	Oppose	Strongly oppose	DK	Total	(N)
	%	%	%	%	%	%	
Improves food quality	18	56	18	3	4	100	(218)
Impairs food quality	1	21	50	24	4	100	(228)
Both	10	65	16	2	6	100	(98)
No effect	0	68	33	0	0	100	(3)
DK	7	44	29	7	13	100	(55)
Total	9	44	31	11	5	100	(602)

X^2 = 185.50, 12 df; p <.01. (Cases in "no effect" row deleted)

Table 4. Relationship between perceived effect of pesticides on human health and opinions about their continued use

Variable	Strongly favor	Favor	Oppose	Strongly oppose	DK	Total	(N)
	%	%	%	%	%	%	
Harmful	2	25	49	20	4	100	(337)
Not harmful	22	71	4	0	3	100	(29)
DK	11	56	19	2	12	100	(64)
Total	9	44	31	11	5	100	(602)

X^2 = 266.81, 8 df; p <.01.

Table 5. Relationship between perceived effect of pesticides on food prices and opinions about their continued use

Variable	Strongly favor	Favor	Oppose	Strongly oppose	DK	Total	(N)
	%	%	%	%	%	%	
Keep food prices from going higher	14	51	24	6	6	100	(288)
Not keep food prices from going higher	6	38	35	17	4	100	(252)
Both	0	0	100	0	0	100	(2)
DK	5	33	42	15	5	100	(60)
Total	9	44	31	11	5	100	(602)

X^2 = 41.25, 8 df; p <.01. (Cases in "both" row deleted)

Moreover, 40 percent of those who said they favor the use of agricultural chemicals believe they impair or have no effect on food quality. Nearly 30 percent of those who favor the use of these chemicals also believe they do not keep prices from going higher than they might otherwise. These results suggest that favorable opinions, while in the majority, are not strongly based on a set of consistent beliefs and may be subject to change. As well, opposition to farm chemicals is not strongly based on a set of consistent beliefs either. For instance, 76 percent of those who oppose the use of these chemicals believe they also increase food production and 34 percent believe they keep food prices from going higher than they might otherwise. Opinions concerning the use of farm chemicals are consistent with two beliefs, however. Ninety-five percent of those who favor agricultural chemicals believe they increase food production and 92 percent who oppose the use of these chemicals believe they are harmful to human health.

Opinion support analyzed

The analysis up to this point suggests that favorable opinions about the use of farm chemicals are based most strongly on the belief that they increase food production. However, 15 percent of those who hold this view also hold beliefs that do not support the use of these chemicals, viz., they believe chemicals are harmful to human health, impair food quality, or do not keep food prices from going higher than they might otherwise. This 15 percent suggests a group that may well shift opinions from favor to oppose once more information becomes available or if they think more

about the issue. As well, the analysis suggests that opposition to agricultural chemicals is based most strongly on the belief chemicals are harmful to human health. However, 36 percent of those who hold this view also hold beliefs consistent with a favorable opinion, viz., chemicals increase food production, improve food quality, or keep food prices from going higher than they might otherwise. This 36 percent may well be a group that will shift opinions once more information becomes available or if they think more about the issue.

The demographic characteristics of those who favored agricultural chemicals and of those who held inconsistent or consistent beliefs were compared. No statistically significant differences were found. A similar comparison was made for those who opposed the use of farm chemicals. Again, no differences were found.

Reasons for harm to human health

We asked respondents who thought chemicals were harmful to human health to tell us why they thought so. A variety of answers was given and these are summarized in Table 6.

Table 6. Reasons why agricultural chemicals are harmful to human health

	Reason	Frequency
		%
1.	POISON - TOXIC - Poisonous and harmful to any species; science has proved they are toxic; Our bodies can't take it; kills birds, bees and bugs; not for human consumption; government doesn't allow children in fields.....	34
2.	ARTIFICIAL PRODUCT - Not a natural product; not bio-degradable; artificial growth of plants causes ill effects; believe in organic foods.....	19
3.	NOT PROVED - Not tested thoroughly; effects not well-enough known; should use only proven products; don't know defects or diseases chemicals cause; need more study.....	13
4.	CAUSES CANCER.....	11
5.	CAUSES POLLUTION - Causes air and water pollution; mercury in fish; causes land to become arid; chemicals contaminate meats, other food.....	11
6.	AFFECTS NUTRIENTS - Causes loss of nutrients in foods; destroys natural quality of food.....	5
7.	PREGNANCY PROBLEMS - Causes miscarriages, birth defects; harmful to breast-fed children.....	5
8.	NO HELP - Chemicals don't improve food quality.....	3
9.	MISUSED - Used too frequently; concentration too high.....	3
10.	QUALIFIED HARM - No harm if properly used; some harmful, some not; depends on chemical or careless use.....	3
11.	AFFECTS NATURAL BALANCE - Upsets balance of nature.....	1
12.	CAUSES ALLERGIES.....	1
13.	DON'T KNOW.....	2
	Total	111
	(N)	(337)

The most frequent response was the belief that chemicals are poisonous or toxic to humans and that science has proved they are harmful to one's health. The second most frequent reason given is that chemicals are artificial, not natural, and therefore harmful. A third reason is the uncertainty or lack of knowledge associated with the safety of agricultural chemicals. Other major reasons given include the belief that these chemicals cause cancer or pollute the environment. College-educated respondents were the only sub-group in the population who responded differently than those for the total sample shown in Table 6. Twenty-five percent of this group said that the safety of farm chemicals had not been proved while only 6 percent believed these chemicals cause cancer. Otherwise, response frequencies of this group were similar to those in Table 6.

Concerns about the health effects of agricultural chemicals surfaced in a recent nationwide survey commissioned by the American Farm Bureau Federation.[2/] Their results show that more than half (55 percent) of those interviewed believe farmers use more chemicals than needed and 48 percent believe they use dangerous chemicals when safer ones would do. Thirty percent feel that chemical companies advise farmers to use more than is needed and 38 percent say these companies fail to make farmers understand the dangers of pesticides. Seventy-seven percent of those interviewed did not want farmers exempted from regulations involving pest and weed killers.

2/ Personal communication, American Farm Bureau Federation, October 25, 1979.

Moreover, the Farm Bureau study shows that 58 percent of the public is "strongly concerned" about environmental problems generally and that nearly 7 in 10 (69 percent) want environmental laws and regulations made stronger than they are now. Americans pick autos (29 percent), non-agricultural chemicals (22 percent) and pesticides/fertilizers (16 percent) as the worst polluters, in that order. Less than one percent, however, sees the farmer as one of the worst polluters.

These results, if they reflect accurately the feelings of Oregonians as well, underscore the fact that the issue of pesticides in the environment is well established in the public's mind and is not likely to go away soon. Moreover, one may infer support for the concept of integrated pest management, although this idea has not been tested directly. Nor has the public's knowledge or information level concerning these issues been examined, so one does not know how well beliefs or opinions are anchored to a well-established knowledge base or if any voting on the pesticide issue will be an informed one.

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