

ANALYSIS AND EVALUATION OF A CHEMICAL PESTICIDE  
INFORMATIONAL PROGRAM PLANNED FOR AN URBAN AUDIENCE

by

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## CHAPTER I

### INTRODUCTION

#### Background

Subsequent to the national furor created by Miss Rachel Carson's *Silent Spring* (1)<sup>1</sup> in summer 1962 and the Mississippi River fish kill in the fall of 1963, the American public for the first time became aware of chemical pesticides and their widespread use. The book, said Senator Abraham Ribicoff (2) "brought forth a great expression of public anxiety over chemical pesticides in our environment. The . . . fish kill served to dramatize Miss Carson's forboding prophecy of an impending silent spring."

Between the book's publication and the fish poisoning, the President's Science Advisory Committee (in May 1963) reported the use of pesticides as the nation's most important weapon for controlling pests. The concensus was that little human health hazard exists when known hazards of these poisonous substances are weighed against the benefits of modern food production and disease control. As a result of this report, federal agencies were directed to coordinate their resources and talents in the dissemination of knowledge about chemical pesticides in such a manner to replace public anxiety with confidence.

As an agency of the federal government, the United States Department of Agriculture has been charged with the responsibility of

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<sup>1</sup>Numbers in parentheses refer to entries in the Bibliography; where appropriate, references to specific parts of a work are noted.

registering pesticides and regulating and controlling their use for the increasing benefit of the public, and thus preventing the contamination of the nation's environment. One of the laws empowering the USDA to make the use of pesticides less hazardous to the public is the Federal Insecticide, Fungicide, and Rodenticide Act (3, pp. 163-173).

The government can go only so far in legislating man's good fortune; the safe and proper use of chemical pesticides lies with their users, the American consumers. To help the public prevent misuse or improper use of chemical pesticides, USDA turned to its informal educational arm--the Cooperative Extension Services at land-grant colleges and universities throughout the United States. Extension Service directors everywhere were instructed to plan training schools and information programs, according to Brady (4, p. 3) "to educate users on the most effective way to use pesticides, the importance of following label instructions, and the dangers of misuse." More than two million dollars were appropriated to state Extension Services to have this mission accomplished.

To fulfill its responsibility in this educational program, the Virginia Cooperative Extension Service established a Chemical, Drug, and Pesticide Unit led by a coordinator assisted by two specialists. This unit immediately began its job by reviewing chemical recommendations made by Extension specialists and agents (and by agricultural researchers), by developing statements directing Extension's clientele toward safe and proper use of recommended chemicals, and by bolstering current subject matter programs with information about chemical pesticides wherever appropriate.

In addition, the Unit planned, designed, and conducted in 1966, under a special grant from the Federal Extension Service, a comprehensive research project titled, "The Effect of a Planned Communication Program on Change of Attitude and Knowledge of the Urban Dweller Toward Chemicals and Pesticides." For the sake of brevity, this project will hereafter be referred to as the primary study.

This thesis is a sub-study concerned with the communication aspects of the primary study conducted by the VPI Chemical, Drug, and Pesticide Unit.

#### The Research Problem

It is extremely difficult to design informational or communication programs aimed at changing knowledge and attitudes of the urban dweller when there appears to be little knowledge about the audience or about how well Cooperative Extension's methods can disseminate educational information to and communicate with this newer audience in Virginia.

#### Purpose of This Sub-study

The purpose of this sub-study is to assess the effectiveness of the Extension Information Project of Virginia's Cooperative Extension Service in reaching the urban dweller, as can be determined from results of data from a planned communication program involving chemical pesticide information. This is an attempt to measure two levels of communications effectiveness, i.e., exposure of audience to information, and changes identified as a result.

### Objectives of This Sub-study

The objectives of this sub-study are:

1. To determine the numbers of people reached in the urban sample with a communication program designed for the chemical pesticide primary study.
2. To determine the adequacy of contact and coverage, based on criteria established in a review of literature, of the various mass communications media (television, radio, newspapers, and the publication) used in the primary study.
3. To investigate and assess change in knowledge and attitudes of the sample.

### Scope of This Sub-study

This sub-study was confined to the residents of Richmond, Virginia, as delineated in the primary study (discussed in Chapter III). The data presented are not offered as generalizations about all urban dwellers, nor about specific subgroups other than the subgroup specifically defined as "middle and upper-middle class" in the primary study.

### Definition of Terms

Audience in this sub-study is synonymous with sample--the people to whom the primary study communications program was aimed.

Contact is the ability of communications media messages to be perceived by individuals in an audience. In this sub-study the term is synonymous with "exposure."

Coverage as used herein is the number of persons in the sample able to receive satisfactory radio or television signals, able to have delivered or otherwise obtain a newspaper, or able to pick up a free publication.

Effectiveness is used herein to describe the degree to which changes in knowledge and attitudes can be attributed to exposure to mass communications media.

Medium identifies any one of the several vehicles by or through which messages are communicated from a source of information to recipients of the information. The plural is media.

Reach is the number of persons in the sample or audience who can recall at least one exposure to a communications medium, or those people who perceive the message.

Readers, listeners, viewers are persons in the sample who can recall specific messages after reading them in newspapers or publications, listening to radios, or watching them on television.

#### Description of the "Planned Communication Program"

In March 1966, members of the Agricultural Information Department of VPI assisted members of the Chemical-Pesticide Unit in "determining what constitutes an effective communication program."<sup>2</sup> Information specialists designed a program for mass media implementation, involving

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<sup>2</sup>W. R. Van Dresser, Chemical-Pesticide Coordinator, in a preliminary design outline of the primary study, distributed in early March 1966 to participants in the study.

television, radio, newspapers and publications. This program came to be known as "the treatment" part of the primary study.

Design of the primary study included an outline of subject matter content for the informational effort. Content was general, including definition and description of chemical pesticides, reading and understanding terms on pesticide labels, the role of the federal and state governments in regulation and control of pesticides, misuse of chemicals, safe and proper ways to use them, problems urban dwellers may solve by using chemical pesticides, buying and using the right pesticide for a specific problem, storing and preserving surplus pesticides safely, and destroying empty chemical containers. This is perhaps an oversimplification of content of the communication program, but a general idea of subject matter is all that will be needed for this sub-study.

Following is a brief description of the effort expended in reaching the target audience with educational information from August 26 through September 22, 1966.

Television. (5) Three television stations in Richmond were sent a complete set of ten 60- and 20-second spot announcement films of "Larry the Label." This cartoon character was created by another state's Extension Service and purchased for use in the primary study. Stations WRVA-TV, WTVR-TV and WXEX-TV each used the set of spots 30 times as between-program or station-break announcements.

In addition, seven 9 1/2-minute programs were presented over WRVA-TV. Four of them were inserts in the regular Extension "Town and Country" program broadcast daily at 6:15 a.m. The other three programs were presented as 3:00 Sunday afternoon specials under the title "Pests or Plenty."

Radio. (5) Four 5-minute radio programs were tape-produced for station WRVA's use on its regular Tuesday morning broadcasts of VPI Extension information from 6:00 to 6:30. The same four programs were used during the treatment period by WTVR from 6:30 to 6:45 a.m. on various mornings.

Also, radio stations WRVA, WTVR, and WLEE each received a special disc recording of 12 one-minute spot announcements featuring various celebrities, among them Kukla, Fran, and Ollie. These stations were not asked to conduct log surveys to record actual usage of the recordings, but information specialists were assured the spots were used on a saturation (whenever possible) basis.

Newspaper. (6) The press phase of the treatment was limited to the Richmond Times-Dispatch. The Extension news editor wrote four stories (one general and three feature) with a "Richmond slant" exclusively for this newspaper. Illustrative photographs were prepared and submitted with the stories, with a request of the editor that they be used at his discretion during the study.

The one general story was printed on Monday, August 29, 1966. It received good display across six columns, with one picture. None of the other stories was used.

Publication. (7) The two-color, 12-page publication "Passport to a Better Life" was developed from a topic outline suggested by the Chemical-Pesticide Unit. It was written, edited, and designed by the Information staff; printing was done commercially in Richmond.

The order of 50,000 copies was delivered to the Henrico County Extension Agent for redelivery to outlets in the study area. The publication was distributed free choice to the consumer audience by being displayed at two medical centers, 18 hardware stores, seven schools, and seven garden center supply stores. (8) More than 37,000 copies of "Passport" were returned to VPI for Statewide use after the primary study was concluded in Richmond.

## CHAPTER II

### REVIEW OF LITERATURE

Review of literature concentrated in three general areas:

(1) theoretical background material and related chemical pesticide and consumer research; (2) measuring communications effectiveness; and (3) studies of the mass media, including television, radio, newspapers, and publications (magazines).

### Background Material

Theoretical Studies. The primary study had as one of its goals ascertaining "the relative effect of various Extension methods used in a planned communications program in bringing about a change in attitude toward, and knowledge of, pesticides and chemicals on the part of the selected audience (9). Evaluating the communications program, in this light, led to a review of pertinent related theories, which were articulated recently by Hadley Read (10). These include the Theory of Selective Exposure--people will read and listen to those things that interest them more than they will to those things that don't interest them; Theory of Selective Perception--people will perceive what they want to perceive; Theory of Selective Retention--people have the capacity to believe and remember what they want to, and "black out" what they don't want to believe or remember; and Theory of Expectation--past experiences are the best guides to future actions.

It is not known precisely what roles these theories played in design of the primary study or conduct of the communications program.

In discussions of Extension and communications methods, several writers alluded to the selective exposure theory in one way or another. Mehren (11) said "The greatest challenge we face in the communications field is knowing our audience." Shipman (12) in her thesis concluded: "an educational institution . . . needs to conduct research and determine attitudes of potential audiences before determining best ways of disseminating information." Parsey (13) stated, "Communications content can be made more acceptable or believable by associating it with the prestige of an institution, an expert, or a communications medium."

Klapper (14, p. 45) seemed to be referring to the selective perception theory when he wrote: "Communications researchers . . . have found . . . persuasive mass communication is particularly unlikely to produce conversions and particularly likely to reinforce existing attitudes." In another writing, Klapper (15, pp. 453-474) listed several variables which influence what is perceived in mass communications, including contextual organization, audiences' image of the source, passage of time, group orientation of the audience member and value of group membership, activity of opinion leaders, social aspect of the situation both before and after exposure, and nature of the media. Negative aspects of this theory were summarized by Robinson (16): "the mass audience is notoriously uninterested in becoming involved in the problems they share and should face."

Klapper (14, p. 51) discussed two phenomena embodied in the selective retention theory as related to effects of persuasive communications. These are (1) minor changes in attitudes frequently follow exposure to persuasive communications, and (2) "ego-involved" attitudes are particularly resistant to change. Klapper (15, pp. 453-474) also said that mass communications doesn't serve as the cause of audience effects, but functions through a nexus of mediating factors and influences, which thereby make mass communications a contributory agent in reinforcing existing attitudes. He indicated that retentive effects of mass media are affected by aspects of the media themselves. Related to the selective retention theory is Robinson's (16, p. 314) conclusion that the dominant effect of media is stasis, or reinforcement of attitudes and conditions; the least common effect is conversion.

Aspects of the theory of expectation were discussed by several writers. Lionberger (17) said the agriculture college, specialists, and county agents are legitimate, socially acceptable sources of information for farmers and can be the same for city dwellers. Cutlip and Center (18, p. 154) warned, however, "that no program, simply because it worked once before in a given situation can be deposited in every new situation of the same type." And Parsey (13) insists the study of techniques has yielded inconclusive findings--psychological findings are implied as more reliable guides to action.

Perusal of recent theoretical literature can best be summarized by paraphrasing some conclusions reached by Hyman and Sheatsley (19, pp. 412-423). These writers claim that selective exposure is produced

by prior attitudes and a person tends to expose himself to information congenial to prior attitudes; that a person's perception and memory of materials are often distorted by his wishes, motives, and attitudes; that it is naive to suppose that information always affects attitudes or that it affects all attitudes equally; and, that the role of interest and psychological barriers must be admitted and not overlooked in designing information to reach the apathetic, hard core of know-nothings.

Chemical Pesticide Studies. In another sub-study, Graham (20, p. 60) pointed up the need for "an evaluative study of present Extension methods of using mass media communications to reach the middle class urban audience," the women in which she identified and made a partial profile of from the primary study data. Frederick and Powers (21) warned of possible danger spots in pesticide communications in a study of terminology comprehension of pesticide labels. He described good communication as "crucial to safe and effective use" of chemicals, and concluded that Extension could well do its educational work with people who sell chemicals. Beal, Bohlen and Lingren (22, p. 20) reported on Iowa farmers' knowledge, attitudes, and use patterns with respect to agricultural chemicals in 1966. They found that 56.7 per cent of the group studied got their information about new chemicals from mass media, but only 19.6 per cent of their 229 interviewees (all farmers) got this kind of information through Extension methods.

Consumer Research Studies. In 1955 Matthews and Ueland (23) reported on effectiveness of mass media in Louisville, Kentucky, and concluded that "Through the use of the newspapers, the radio, and television, three in every five of the respondents had been contacted," at least once by one or more of the media. Simonds (24) wrote in 1958 that half the urban-oriented food buyers in an Ohio study wanted and got help with their problems from newspapers, one of Extension's most-used methods, but used radio and television as sources of information also. In finding that 12.5 per cent of a Massachusetts suburban audience was aware that Extension was a source of horticultural information, Barcus (25) suggested that Cooperative Extension should be better identified with the needs of a suburban population. He recommended that Extension's use of mass media be re-examined.

#### Measuring Communications Effectiveness

Review of reports of measuring communications effectiveness was confusing and sometimes discouraging. Capitman (26, pp. 98, 102) decided it was "ridiculous to talk about effectiveness when we have no clear-cut understanding of what we are discussing." Lucas and Britt (27) voiced similar conclusions, i.e., there are too many factors in communications which cannot be measured. They said it is wrong to assume that combining media audiences is valid in measuring effectiveness--the measures of exposures of a reader are non-comparable to measures of exposures of a viewer. Politz (28, pp. 46-48) said a complete comparative evaluation of media cannot be achieved; some media sell time, others sell space.

In a 1950 study of techniques for measuring communications effectiveness, Lucas and Britt (28, p. 674) concluded that "proper evaluation must take into account size of audience, classes of people of which the audience is composed, attitudes of these people." These authors (27, p. 329) in 1963 discussed attitudes of audiences toward media vehicles, attitudes of audiences toward messages in general, and attitudes of audiences toward specific messages in another approach to measuring effectiveness. They concluded: "There is, as yet, no clear concept of dimensions of attitudes, nor is there any practical measuring procedure having widespread acceptance."

Other aspects of communications effectiveness reported in the literature included pure recall measures, aided recall measures, and recognition measures. Additional factors discussed by researchers in the review of literature were: physical differences within media, necessity of evaluating each medium as seen by its own audience, tendency for researchers to assume most readers and viewers can recall long enough and discriminate well enough to give accurate information, emphasis upon "who" as well as "how many" are reached by particular media vehicles, and numbers of people mean little if they (numbers) can't be related to changes in behavior. These elements all contributed to the philosophy of this sub-study.

Sarbaugh (30) assessed effectiveness in terms of getting attention and contributing to change. He claimed that when the communicator develops an informational campaign based on a rather thorough knowledge

of his audience, measurable gains in the audience's knowledge, attitudes, and adoption will occur in the direction intended by the communicator.

The confusion of ideas and thoughts about measuring communications effectiveness resulted in borrowing an idea from Starch (31, pp. 39 ff). He hypothesized that if advertising's purpose is to change peoples' minds (introduce an idea, alter an impression, strengthen a conviction) then measurement of what happened in peoples' minds would be a legitimate measurement of performance, or effectiveness. The changes in knowledge and attitudes are what happened to the minds of people involved in the primary study, so measuring these changes should assess effectiveness of the communications program. That is what this sub-study proposed to do.

#### Studies of the Mass Media

The review of literature concentrated on mass media in an attempt to find basis for evaluating an informational effort. Informative, if not strictly pertinent and comparable, data were found for each medium used in the primary study.

Television. This medium was a source of news and entertainment in 91 per cent of U. S. homes in 1963, compared to 44 per cent of households owning television sets in 1953. Ownership figures in 1964 were 93 per cent for the U. S. and 90 per cent for Virginia. The average televiewer watched his set about five hours, 19 minutes daily in 1951. The average increased to about six hours, 20 minutes daily in 1964-65.

The majority of these hours with television was spent for relaxation and diversion. According to Steiner (32, p. 202), 8 per cent of viewing time in 1963 was spent in watching information programs, and 41 per cent in watching entertainment. A 1960 report stated 77.7 per cent of viewing time in New York City was spent watching entertainment programs. Winfield (33) reported in 1966 that television stations scheduled entertainment 74 per cent of the time during the day, and 84 per cent during nighttime hours. About 60 per cent of U. S. households in 1961 watched television in the evening hours--the most preferred being between 8:00 and 9:00 p.m.

In 1953, Politz (34) predicted each showing of five national television shows could reach from 13.3 per cent to 23.6 per cent of U. S. population. His projection to the 119.6 million population was based on a sample of 7,141 people. Matthews and Ueland (23, p. 8) reported television covered 20 per cent of its potential clientele in that city in 1955, and that coverage represented the only means of reaching seven per cent of the households in the study.

Woods (35) and Hoffman (36) advocated adoption of 20- and 60-second "spot" announcements as television carriers of Extension's educational information messages, because their length makes them easier to use than other programming materials in filling unsold commercial time. Woods (35) also found that an essential element in effective use of spot announcements is "timeliness" of the message in meeting needs of the audience.

Radio is less an entertainment medium than is television. Because listeners can use radio while doing other things, they have reported it is preferred for news, weather reports, and music. The Journal of Psychology reported in 1949 that human interest and spectacular events broadcast by radio were better remembered by their listeners than were serious public affairs programs. Lambert (37, p. 13) reported that in 1962 radio stations across the country averaged \$300,000 worth of public service programming, and that television gave an estimated 16 billion "public service impressions" that year.

Radio is available in about 92 per cent of U. S. homes, but this medium reaches only about three per cent of its potential audience in prime listening hours, according to Niefeld (38). Several studies (39), (40), (41) reported most radio listening is done between 6:00 and 9:00 a.m., by more women than men, from 90 minutes to three hours daily; and one found listeners turned to radio an average of 24 hours, 45 minutes per week--including auto portable radio listening. Richmond, Virginia listening habits closely paralleled this profile during the time of the primary study in 1966 (42).

Winfield (33) claimed that radio stations normally schedule 75 per cent entertainment and music, 10 per cent news, and 15 per cent commercials and all other types of broadcasts.

Politz (34) estimated that 8.2 to 15 per cent of the total U. S. population owning radios could be reached by each single presentation of a series of four shows broadcast nationwide, in 1953. In 1955,

Matthews and Ueland (23, p. 8) reported that radio covered about five per cent of its potential Louisville clientele and it was the sole means of reaching three per cent of all households in the sample. Crile (43, pp. 9, ff.) summarized several radio studies in 1955. In one of these five per cent of the audience provided information for an evaluation study; in another, 26 per cent of the interviewees gave recall responses; and in another, 40 per cent of the potential audience provided data for evaluating effectiveness. Results of the Richmond survey (42) were published from responses of 87 per cent of the households interviewed.

Timing and timeliness were emphasized by Mandell (44, pp. 16-18) in his 1963 radio study. He said: "The timing of the broadcasts stands out as the chief practical consideration in education via radio." Other researchers said radio listeners want their educational programs to be entertaining also, or they would rate them low in interest. Like television, radio is changing to more spot announcements in all types of broadcasting.

Newspapers. Through the years, newspapers have been the primary source of news and information for the American public. In one study reviewed (45, pp. 63-76) 90 per cent of respondents named the local newspaper as the source of information about the topic being studied. In Louisville, Matthews and Ueland (23, p. 8) reported newspapers covered 45 per cent of their potential clientele during the study, and were judged to be the sole means of reaching 30 per cent of the audience.

Wilson and Gallup (46, p. 59) indicated that about 85 per cent of the total adult population read one or more newspapers. In another study, Porter (47) reported four-fifths of the sampled households were receiving one or more newspapers. In Richmond during the summer of 1966, there were an estimated 146,200 households (48). The morning daily reached 62 per cent of this potential audience, the evening daily reached 74 per cent of the potential, and together the newspapers reached 90 per cent of this potential, as reported by the newspapers.

In 1957 Read (49) reported that daily newspapers tend to be more selective than weeklies in using agricultural and other Extension releases, and said that "Most editors are satisfied with information content of releases, but emphasize the need for a "news angle." From the public's viewpoint, a recent report from Richmond (50) says: "It is evident that there is a very high degree of acceptance and approval of advertising in both newspapers . . . and that this is in rather sharp contrast with the attitude towards the other media."

Publications. As far as could be determined from the literature review, the free-choice method of publications distribution (as employed in the primary study) has not been measured for effectiveness. Bulletins, circulars, pamphlets, folders, etc. "are better used to supplement other teaching methods than for initiating the teaching process" (46). Publications are generally believed to be most effective when used as aids in a planned educational program providing interest and need for the information exist or are aroused.

"Reach potential" as an effectiveness measure was described by Papazian (51, pp. 6-7) in a 1964 magazine study. During the study, he determined that adults reached per copy of Life were 4.7; for Look were 4.1; for Post 3.6. He concluded: "This and other research indicates that a typical weekly (Life and The Post) will reach about 50 per cent to 65 per cent of its total issue audience during the first week . . ." He estimated that a monthly publication reaches 60 per cent to 65 per cent of its total issue audience in the first two weeks.

In 1966 Papazian (52, pp. 60-65) made some further observations on audience accumulation patterns he had studied from 1955 through 1964. He concluded that the typical mass weekly reaches 60 per cent of its audience in one week and 80 per cent in two weeks. First-day reach was as high as 90 per cent for a Sunday supplement, to as low as 15 per cent for The Post.

#### Summary

The literature review can be summarized as follows:

Informational programs should be based on research into knowledge, attitude, and interest levels of the audience; the most common effect of information contact is reinforcement of existing attitudes; Extension is legitimate and socially acceptable to urban audiences; Extension's role and methods should undergo constant examination and evaluation in light of its changing audiences.

Search of the literature revealed no completely accepted, fool-proof methods of measuring communications effectiveness, but testing changes in knowledges and attitudes has credence.

Television was watched about six hours daily, mostly in the evening for entertainment, and reached an average 20 per cent of its potential audience with any given message. Radio was listened to mostly by women about three hours daily throughout the day, and reached about five per cent of its potential audience with a given message. Newspapers continued to be the most acceptable of mass media, reaching as much as 90 per cent of the population and having the ability to reach effectively 45 per cent of a potential audience. Publications were best used to supplement other media in communications programs. Magazines were studied as a basis of comparison for purposes of this study, and literature revealed 65 to 80 per cent of potential audiences were reached in two weeks. This was reach potential--the longer a publication was available, the more people saw it.

## CHAPTER III

### METHODOLOGY

#### Population and Sample

Data for the primary study were taken from city residents in Richmond (the experimental group) and from Roanoke (the control group). The plan for random sampling in both cities was designed by Dr. Charles E. Ramsey,<sup>1</sup> one of the consultants for the primary study.

Sampling was limited to those people who were (1) residents of a metropolitan population of 75,000 or more; (2) residents of middle and upper-middle income housing areas, as "determined by the housing evaluation level of the cities and by consultations with Extension agents" (20, p. 18); (3) residents living in single-unit, unattached dwellings; and (4) residents of households with equal numbers of homemakers or male heads.

There were 1,197 interviews made in Richmond--600 before the informational program was conducted, and 597 after the program was completed. In the control group (Roanoke) 201 interviews were made concurrently with interviewing in Richmond before the informational treatment, and 213 respondents drawn at the same time the post-treatment sample was taken in Richmond.

Maps and U.S. Census of Housing publications (20, p. 19) for Richmond and Roanoke were used to select sampling areas in both cities. Blocks

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<sup>1</sup>In 1966, Professor of Research Methods, University of Minnesota.

within these areas were numbered consecutively, and five houses within each block were selected for interviewing (according to a book of random numbers used to draw the sample). Applicable criteria for selecting houses to interview were: (1) for a four-sided block, one corner house and one house from each side; (2) for a three-sided block, two houses each from the opposite sides (including one corner house from one of these sides) and one house from the odd side; and (3) for a two-sided block, one corner house and two houses each from the two sides (20, p. 20).

### The Interview Schedule

The instrument of observation used in the primary study was a personal interview schedule, the original of which is reproduced as Appendix A. The interview schedule was designed by Dr. Van Dresser and Dr. M. C. Heckel,<sup>2</sup> original project leaders for the primary study, in consultation with Mrs. Laurel Sabrosky.<sup>3</sup> The schedule consisted of 70 questions. The first 51 questions were used in sampling each pre-treatment group; all 70 were used to interview each post-treatment group.

The interview schedule was pretested by its designers with a group of people possessing characteristics similar to those of the respondents in the primary study samples.

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<sup>2</sup>In 1966, Professor and Head, Extension Education, and Extension Training Leader, Cooperative Extension Service, Virginia Polytechnic Institute.

<sup>3</sup>Formerly Extension Research Specialist in Evaluation, Research, and Training, Federal Extension Service, United States Department of Agriculture.

The interview schedule was designed to gather data about the audiences' (1) attitude toward pesticides, (2) knowledge of buying, using, and storing pesticides correctly and safely, (3) knowledge and attitude toward regulations and legislation concerning pesticides, and (4) exposure to Extension's chemical-pesticide information program.

Trained interviewers were employed by Psychological Consultants, Inc. (1804 Staples Mill Road, Richmond) to gather data with the questionnaire. Pre-treatment interviews were conducted in July and August 1966 by 29 interviewers; post-treatment respondents were contacted in September and October 1966.

In both Richmond and Roanoke, a "reinterview group" was established to provide a basis for comparison. After the pre-treatment interviewing was completed, numbers were assigned to interview schedules from both cities. From a table of random numbers, interviewees in each sample were selected for reinterview following treatment. The first 50 respondents to agree to be reinterviewed comprised the "reinterview group", but because two interview schedules could not be matched in the Roanoke sample, that group was reduced to 48 respondents.

Data from the interview schedules were tabulated by the Chemical-Pesticide Unit staff, and coded for processing by the 7040 and 1401 computers at the V.P.I. Computing Center. That facility processed all the data for the primary study, and provided all calculations used in this sub-study.

Data for This Sub-study

Data used in this thesis were those taken from the interview schedules of the 597 post-treatment respondents in the Richmond population. The data deemed appropriate and essential in reaching objectives of this sub-study included: (1) responses to six questions previously coded to indicate respondents' familiarity with or knowledge of content of the informational program, and (2) knowledge and attitude scores of people in the post-treatment sample.

The coding of the six questions involved assigning a specific number to a response which indicated recall of subject matter presented in the program, and assigning different numbers to responses reflecting perception of chemical pesticide subject matter not specifically included in the planned program. These responses, or instances of recall, have been identified as contacts. Those questions judged to indicate contact by media with the specific content of the planned program are handmarked with an asterisk in Appendix A.

Average knowledge and attitude scores were taken from interview schedule questions previously identified by Mrs. Sabrosky and designers of the study as those which, when answered, would reflect the respondents' knowledge and attitude. The questions, in Appendix A, are keyed by hand: KG for "knowledge general," KGT for "knowledge government," AG for "attitude general," and AGT for "attitude government." These categories will be used in the data analysis.

Data cards on the Richmond post-treatment sample of 597 people were sorted by individual columns to indicate contacts by the various media, and interview schedule numbers were recorded after each sorting. The recorded interview schedule numbers were arranged numerically on a chart, and after each number a checkmark was made in the appropriate column to indicate which medium was involved in the contact. Mass media contacts are summarized in Chapter IV.

#### Data Analysis

Since there were data from one sample used for this sub-study, and since the numbers were relatively small, it was decided to employ the t test (53, pp. 223-242) in determining significance of indicated changes in knowledge and attitude and relating them to exposure to the informational program.

## CHAPTER IV

### ANAYLSIS OF DATA

The analysis of data is presented to indicate who was contacted by the planned informational program and how the contacts were made, to indicate whether there was change in knowledge and attitude by comparing their scores with knowledge and attitude scores of people in the sample who were not contacted by the planned program, and to indicate whether the change was significant by statistical testing.

Scales for scoring respondents' answers were established in the primary study, and are described here to point out that ample room existed for improvement in the level of knowledge and attitudes of the sample. A perfect "knowledge general" score was rated 5.3; a perfect "knowledge government" score was rated 7.5. Likert's International Scale (54, p. 319) was used to score "attitude general" and "attitude government" responses. In this scale, 5.0 is a neutral attitude score, 10.0 scores a favorable attitude, and 0.0 indicates unfavorable attitude.

Because knowledge and attitude scores are rated on three different scales, it is emphasized that no attempt should be made to compare numerical levels between the four categories of scores analyzed in this chapter.

Pattern for the Analysis

It was decided to consider data for this sub-study according to the following pattern:

(1) Determination of the number of contacts made in the Richmond sample by television, radio, the newspaper, and the publication which carried the informational program of the primary study.

(2) Determination of the number of people represented by the contacts.

(3) Determination of coverage of audience, or percentage of audience contacted, by each medium.

(4) Identification of people contacted by each medium, and tabulation of their knowledge and attitude scores.

(5) Comparison and testing of four dependent variables against 12 independent variables. The dependent variables are general knowledge, knowledge of government, general attitude, and attitude toward government about chemical pesticides. The independent variables include contact by television, contact by radio, contact by newspaper, contact by the publication, contact by all media, contacts by one and by more than one medium, contact by "Larry the Label," recall of the subject of "Larry the Label," television set owners in the Richmond "reinterview group" who saw "Larry the Label," television set owners in the Richmond "reinterview group" who did not see "Larry the Label," the total Richmond "reinterview group," and the total Roanoke "reinterview group."

Contacts Made by the Informational Program

From tabulation of responses to the six questions defined in the preceding chapter, it was determined that mass media in the planned communications program made 165 contacts in the Richmond audience. Mass media contacts are summarized in the following table.

TABLE I.--Number and percentage of contacts accomplished by each medium in the planned informational program in the Richmond sample.

Medium	Contacts	
	Number	Per cent
Television	103	62.42
Radio	24	14.55
Newspaper	12	7.27
Publication	26	15.76
Totals	165	100.00

Number of People Represented by Contacts

Recording interview schedule members revealed that some people were contacted by more than one mass communications medium. This was expected. To determine how many individuals the 165 contacts represented, the number of contacts by one medium were counted. Added to this figure were the number of double contacts divided by two, and the number of triple contacts divided by three. No person was contacted by all four media. Table II summarizes the recording of contacts.

TABLE II.--Communication contacts by kind and number in the Richmond post-treatment sample.\*

Medium	1 Contact	2 Contacts	3 Contacts	Totals
Television	85	16	2	103
Radio	11	11	2	24
Newspaper	5	6	1	12
Publications	16	9	1	26
Totals	117	42	6	165

\*No individual was contacted by all four media.

The total of 103 contacts by television indicates 16 by television and another medium, and two by television and two other media. For this sub-study it was determined that complete identification of the multiple contacts was unimportant, so long as single contact of each medium could be determined.

Table III describes the number of people contacted by the informational program.

TABLE III.--People represented by 165 media contacts and percentage of the Richmond sample contacted.

Exposure	People	
	Number	Per cent
One Medium only	117	19.60
Two media (42/2)	21	3.52
Three media (6/3)	2	0.33
Four media	0	0.00
Total people contacted	140	23.45
People not contacted by media	457	76.55
Totals	597	100.00

It was expected that the numbers of people contacted by four media would exceed the number contacted by a single medium but the opposite proved to be the case. A four-media program would not be expected to contact less than one-fourth its potential audience.

The following table describes the percentage of the sample contacted by each medium, as listed in Table II.

TABLE IV.--Percentage of sample contacted by one communications medium, Richmond.

Medium	People	
	Number	Per cent
Television	85	14.24
Radio	11	1.84
Newspaper	5	.84
Publication	16	2.68
Totals	117	19.60

n = 597

The review of literature indicated a similarity of contact might be achieved by newspapers and television in a planned program; that was not the case in the primary study. This table is a by-product of procedures employed in determining how many people were contacted in the Richmond sample, and is presented to show the relative effect of media employed in the primary study.

#### Comparison and Testing of Scores

After identifying people in the audience who had been reached by the informational program, the next procedure was to compare their

knowledge and attitude scores with scores of the sample not contacted by any media, and test the differences.

The next 8 tables list average scores and differences between scores of those people exposed to and those people not exposed to the communications program in the primary study. They also indicate degrees of freedom for testing, t values, and significance of the difference at the 5 per cent level of probability. All calculations were provided by the V.P.I. Computing Center.

TABLE V.--Effect of television on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
All television contacts (103)	3.52738	2.63729	7.15825	5.14401
No contacts by television (494)	3.51509	2.21639	7.00013	4.95277
	Analysis			
Difference in scores	0.01229	0.42090	0.15812	0.19124
t value	0.121	1.999	1.021	0.784
Significance at 5%	NS	S	NS	NS

df = 595

The difference in "knowledge government" scores was significant between people who had been exposed to television in the informational

program and those who had not been exposed to this medium. Because information about the government's role in chemical pesticides received no special emphasis, compared to information which would influence the other categories, this significant increase in score is unexplained.

TABLE VI.--Effect of radio on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
All radio contacts (24)	3.33634	2.86814	6.88750	6.05208
No contacts by radio (573)	3.52479	2.26475	7.03327	4.94110
	Analysis			
Difference in scores	0.18845	0.60339	0.14577	1.11098
t value	- 0.965	1.487	- 0.489	2.378
Significance at 5%	NS	NS	NS	S

df = 595

A highly significant difference existed between the "attitude government" scores of people exposed to radio and those not exposed to radio programming in the primary study. As noted with the score change after exposure to television programming, no particular emphasis was placed on information in the program which would result in influencing attitudes toward government more than other dependent variables. This

significant change after exposure is unexplained, especially because general attitude scores are lower for people contacted by radio. The observed pattern--decrease in general scores with exposure and increase in government scores with exposure--could not be explained because it does not maintain itself.

TABLE VII.--Effect of the newspaper on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
All newspaper contacts (12)	3.20608	2.81597	6.85833	6.47917
No contacts by newspaper (585)	3.52359	2.27820	7.03088	4.95513
	Analysis			
Difference in scores	0.31741	0.53777	0.17255	1.52404
t value	-1.162	0.946	-0.414	2.330
Significance at 5%	NS	NS	NS	S

df = 595

A significant difference was found between "attitude government" scores of people who read the newspaper article and people who were not contacted by the newspaper article in the primary study. This increase in score is consistent with the significance of the scores for the same category in the preceding table. A similar pattern was also observed,

i.e., general scores were lower for people contacted by the newspaper and government scores were higher for the same people. Content of the newspaper feature story emphasized the role of government, state agencies and rules and regulations concerning chemical pesticides, which can account for the significance of the increase in this score.

TABLE VIII.--Effect of the publication on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
All publication contacts (26)	3.65768	2.93384	7.27692	5.00000
No contacts by the publication (571)	3.51082	2.25965	7.01605	4.98511
Analysis				
Difference in scores	0.14686	0.77419	0.26087	0.01489
t value	0.782	1.728	0.910	0.033
Significance at 5%	NS	NS	NS	NS

df = 595

No significant differences were found between average scores, in any category, of people who read the pamphlet "Passport to a Better Life" and those who did not read the publication. The lack of significance in changes in these scores is unexplained. This publication received an extraordinary amount of preparation, planning, and distribution maintenance.

It was judged by the primary study designers to be a "quality" presentation, and was expected to be attractive to the audience.

TABLE IX.--Effect of all mass media on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
All mass media contacts (140)	3.50747	2.60731	7.14500	5.25179
No contacts by mass media (457)	3.52020	2.19150	6.99139	4.90427
	Analysis			
Difference in scores	0.01273	0.41581	0.15361	0.34752
t value	-0.141	2.216	1.113	1.600
Significance at 5%	NS	S	NS	NS

df = 595

Average "knowledge government" scores of the people who were contacted by the informational program were significantly higher than they were for people who had not been contacted by the mass media in the primary study. The significant increase in score in this category also is unexplained, especially since people who were not contacted by mass media had slightly higher average scores than people who were contacted. In the total program, information to increase knowledge of government was not stressed more than information in the other areas.

TABLE X.--Effect of multiple contacts on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Contacts by one medium (117)	3.52783	2.44994	7.20855	5.16097
Contacts by two or three media (23)	3.40393	3.40787	6.82174	5.71377
	Analysis			
Difference in scores	0.12390	0.95793	0.38681	0.55270
t value	0.627	-1.988	1.578	-1.013
Significance at 5%	NS	S	NS	NS

df = 138

"Knowledge government" scores were significantly different between those people contacted by one communications medium only and those contacted by two or three media. Although the t value appears negative in the table, the significance indicates more knowledge reflected by people contacted by more than one medium, as should be expected. Although not significant, the change in the attitude government score was in the same direction. Because general scores were higher for people contacted by one medium than for people contacted by more than one medium, the one significant difference in scores is unexplained.

Television made the most contacts in the audience. The television cartoon character, "Larry the Label," was remembered by 80 of the 140 people reached as a single contact, and by 18 others in one or the other "multiple contact" groups. Since these 98 people represent 70 per cent of the contact by the informational program, their scores were included separately in the analysis to determine significance on effectiveness of "Larry the Label" and his approach.

TABLE XI.--Effect of "Larry the Label" on changes in knowledge and attitudes in the Richmond post-treatment sample.

Item	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
People who saw "Larry" (98)	3.53454	2.62243	7.12245	5.13690
People who didn't see "Larry" (499)	3.51381	2.22353	7.00874	4.95608
	Analysis			
Difference in scores	0.02073	0.39890	0.11371	0.28082
t value	0.200	1.856	0.720	0.727
Significance at 5%	NS	NS	NS	NS

df - 595

There was no significant differences found between average scores of people who saw "Larry the Label" and the people who did not see this cartoon character. This was an unanticipated result, because "Larry the Label" was considered by information specialists to be top quality and was expected to carry his part of the program with significant results.

TABLE XII.--Effect of remembering the subject of "Larry the Label" on changes in knowledge and attitude in the Richmond post-treatment sample.

People who saw "Larry the Label"	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Subject of program remembered (40)	3.56653	2.41250	7.17000	4.89792
Subject of program forgotten (58)	3.51247	2.76721	7.08965	5.30172
	Analysis			
Difference in scores	0.05406	0.35471	0.08035	0.40380
t value	0.292	-0.791	0.345	-0.799
Significance at 5%	NS	NS	NS	NS

df = 96

No significant difference was found between average scores of people who saw "Larry the Label" and remembered his subject, and those who saw him but forgot why he was on a television program announcement. It was expected that people who remembered the subject of "Larry the Label" would have scores significantly different from those of people who forgot his subject.

The next four tables describe score comparisons and tests for significance in the "reinterview group" as defined in the primary study and discussed in the preceding chapter.

TABLE XIII.--Effect of "Larry the Label" on changes in knowledge and attitudes of people in the Richmond "reinterview group" who owned television sets.

Owners of television sets who saw "Larry the Label"	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Before treatment (13)	3.76371	2.17033	6.88462	6.22436
After treatment (13)	3.61588	1.57051	7.19231	5.68590
	Analysis			
Difference in scores	0.14783	0.59982	0.30769	0.53846
t value	0.377	0.693	-0.557	0.543
Significance at 5%	NS	NS	NS	NS

df = 24

Significance was not found in comparing average pre-treatment and post-treatment scores of people in the Richmond "reinterview group" who owned television sets and who reported seeing "Larry the Label." These comparisons were the result of concentrating on the largest identifiable group contacted in the reinterview sample. This is a large sub-group (13 people) contacted by television, compared to one person each contacted by radio, the newspaper, and the publication.

TABLE XIV.--Effect of not seeing "Larry the Label" on changes in knowledge and attitudes of people in the Richmond "reinterview group" who owned television sets.

Owners of television sets who did not see "Larry the Label"	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Before treatment (28)	3.80981	2.32355	7.22143	5.52381
After treatment (28)	3.62189	2.48462	7.32143	4.70238
	Analysis			
Difference in scores	0.18792	0.16107	0.10000	0.82143
t value	0.930	-0.319	-0.334	1.434
Significance at 5%	NS	NS	NS	NS

df = 54

There were no significant differences in pre-treatment and post-treatment scores of people in the Richmond "reinterview group" who had not been exposed to "Larry the Label." People who did not own television sets at the time of the interview were not included in the analysis. Preceding not significant results make this comparison valueless. This table was included in the original design to determine if any significant changes could be detected and attributed to something other than "Larry the Label."

TABLE XV.--Effect of the planned communication program on changes in knowledge and attitudes in the "reinterview group" of the Richmond sample.

Reinterviewees	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Before treatment (50)	3.76802	2.18325	7.07600	5.65833
After treatment (50)	3.64731	2.09972	7.18600	5.05000
	Analysis			
Difference in scores	0.12071	0.08353	0.11000	0.60833
t value	0.754	0.221	-0.436	1.335
Significance at 5%	NS	NS	NS	NS

df = 98

No significant differences were found between test scores of people in the Richmond "reinterview group" who had been exposed to the planned communications program, and their scores before exposure to the chemical pesticide information. These results reduce the weight of the significances found in comparisons described in tables V through X in this chapter. Because this group is a check on the population sampled, the lack of significant change in the group indicates that the isolated cases of significance reported previously may be considered as chance happenings.

TABLE XVI.--Changes in knowledge and attitudes in the "reinterview group" of the Roanoke control sample.

Reinterviewees	Average Scores			
	Knowledge General	Knowledge Government	Attitude General	Attitude Government
Before treatment (48)	3.51598	2.80952	7.07662	5.06944
After treatment (48)	3.75471	2.52199	7.80208	5.11806
	Analysis			
Difference in scores	0.23873	0.28753	0.72546	0.04862
t value	-1.494	0.651	-0.881	-0.077
Significance at 5%	NS	NS	NS	NS

df = 94

In the Roanoke "reinterview group," there were no significant variations found in pre-treatment and post-treatment knowledge and attitude scores. The lack of significant change in this control group was expected because it did not receive the planned communications program, which indicates the control was adequate. These results are evidence of the ineffectiveness of the informational contact, since the experimental reinterview group showed no more significance than the control reinterview group, in comparing average scores.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

In partial fulfillment of its responsibility of providing Virginia's citizens with up-to-date, factual information about safe and effective use of chemical pesticides, the Chemical, Drug, and Pesticide Unit of the Cooperative Extension Service in 1966 planned, designed, and conducted a comprehensive research project. The primary study, "The Effect of a Planned Communication Program on Change of Attitude and Knowledge of the Urban Dweller Toward Chemicals and Pesticides," provided the framework for this thesis, which is an evaluative sub-study of the communications aspects of the research project.

Objectives of this sub-study were (1) to determine the numbers of people reached in the urban sample with a communications program designed for the chemical pesticide primary study; (2) to determine the adequacy of contact and coverage, based on criteria established in a review of literature, of the various mass communications media (television, radio, newspapers, and a publication) used in the primary study; and (3) to investigate and assess change in knowledge and attitudes of the sample.

Data for this sub-study were taken from the primary study, for which sampling and interviewing were done by professional consultants.

The sample considered in this sub-study consisted of the 597 people in Richmond, Virginia who were interviewed after a planned communication program had been conducted in that city. The Roanoke control group was considered for one comparison.

Statistical techniques used in this sub-study included frequency distribution, percentage, and t test for significance.

### Findings of This Sub-study

Numbers of People Contacted. Data card sorting procedures revealed that 140 people in the sample of 597 had been contacted by the informational program. This is coverage of 23.45 per cent of the audience. Of these people, 117 were contacted by one medium, 21 were contacted by two media, and two were contacted by three media. No one in the sample was contacted by all four media--television, radio, newspaper, and the publication.

Of the 117 people contacted by one medium, 85 were contacted by television, 11 by radio, 5 by newspaper, and 16 by the publication. Some of the 140 people were contacted several times. Contacts by all media totaled 165 of which 103 were by television, 24 by radio, 12 by newspaper, and 26 by the publication.

Adequacy of Contact. Contact by the informational program was compared to criteria or standards found in the literature.

Television, owned by 90 per cent of Virginia households in 1964, was reported having the ability to reach as much as 23.6 per cent of its potential audience as long ago as 1953, on a national basis. In a

metropolitan sample in 1955, television reached 20 per cent of the sample. This compares to the 14.24 per cent contact achieved in the primary study in 1966.

Radio, available in 92 per cent of all U. S. homes, reaches from three to five per cent of its potential audience, according to the literature. This medium contacted 1.84 per cent of the Richmond sample.

Daily newspapers are reported to be the primary source of news for Americans; as many as 90 out of 100 regularly see newspapers. The newspaper contact in the primary study was less than one per cent (.84%).

Popular news and feature magazines have a reach potential, and this was the basis for comparison of contact by the publication "Passport to a Better Life." The literature reported this potential from 60 per cent of the audience in one week to 80 per cent in two weeks. The publication contacted 2.68 per cent of its audience in one month, in the primary study.

Significance of Score Comparisons. Four dependent variables were scored from responses of people interviewed in the Richmond post-treatment sample. These variables were tested against 12 independent variables for significance of difference. Testing of these 48 comparisons yielded five significant t values at the 5 per cent level of probability; all other t values were not significant.

"Knowledge government" scores of people contacted by television were significantly higher than the scores of people who were not contacted by television.

"Attitude government" scores of people contacted by radio were significantly higher than the scores of people who were not contacted by radio.

"Attitude government" scores of people contacted by the newspaper were significantly higher than the scores of people who were not contacted by newspaper.

"Knowledge government" scores of all people exposed to any phase of the communications program were significantly higher than the scores of people who were not exposed to the planned communications program.

"Knowledge government" scores of people contacted by more than one medium were significantly higher than the scores of people who were contacted by only one medium.

### Conclusions

The general conclusion to be drawn from this sub-study is that the planned communications program failed to increase knowledge of and promote favorable attitudes toward chemical pesticides in the urban audience for which it was designed.

Specific conclusions are:

(1) Too few people (140 of 597) were contacted by the four mass media used in the total program. Contact of less than one fourth of an audience could not be expected to increase knowledge and promote favorable attitudes.

(2) Each medium fell short of achieving its potential reach in the sample. Compared to media coverage reported in the literature, both the individual and combined coverage in the Richmond sample by mass communications media were inadequate.

(3) The five significant differences in scores must remain unexplained. Information about the government's role in chemical pesticides was not emphasized to a greater degree than other elements of the informational program, yet significant differences appeared only in these categories. Significant differences were distributed without pattern, and in no obvious relationship to each other.

(4) There were no significant variations in pre-treatment and post-treatment scores of the Richmond "reinterview group," and likewise no significant variations in pre-treatment and post-treatment scores of the Roanoke "reinterview group." This observation supports validity of comparisons made within the sub-study.

#### Recommendations

Designers of communications programs for Cooperative Extension's urban audience must take into account several aspects of communications.

First of these is timing. The urban consumer is preoccupied with school starting in September, or in October with preparing for fall and winter activities. It is in the spring when most people exhibit the desire and need for chemical pesticide information, not in late summer and early fall as it was presented by the informational program in the primary study.

Secondly, it is recommended that research be conducted before informational programs are designed for a specific audience, and be a continuing part of Extension's information effort. The primary study will provide vital audience information, and it is recommended this information be made available to guide designers of future informational programs.

Also, Extension's traditional methods of using mass media to reach Virginia's citizens should be evaluated. It is recommended that this evaluation be made in the context of current research results in all fields of communications, and for each medium used in existing programs.

Finally, it is recommended that buying prime space and time in commercial media be investigated as a means of getting Extension's message to the public effectively. High-quality in preparation and presentation should be a natural result, along with improving knowledge and attitude levels of the urban audience.

#### Recommendations for Further Study

Results of this sub-study suggest other areas of investigation which might be undertaken within the primary study:

(1) an item analysis of certain questions in the interview schedule to ascertain listening habits of the urban audience in Virginia.

(2) A detailed survey of informational program content to indicate weaknesses and strengths of approaches used in the primary study.

(3) An investigation into methods of using mass media in the primary study to seek answers for such questions as: "Why was only one newspaper article printed in the month of the informational program?"; "Is free-choice distribution of publications an efficient method?"; "Is Extension information being broadcast only in public service time, which has little commercial value and hence little interest value?"; "Is the entertainment value of "Larry the Label" responsible for television's high level of contact in the Richmond sample, compared to the other media, or is this attributable to other factors?"

(4) An analysis of interviewing, coding, and scoring procedures employed in the primary study to determine the level of human error, and to establish correction factors for this error.

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APPENDIX

Va. Coop. Extension Service  
Virginia Polytechnic Institute

Budget Bureau No:	40-6673
Approval Expires:	Dec. 31, 1966

Summer 1966

Address of respondent \_\_\_\_\_

Date of interview \_\_\_\_\_ Interviewer's name \_\_\_\_\_

### CHEMICAL-PESTICIDE STUDY

I am representing the College of Agriculture of Virginia Polytechnic Institute which is making a study of the interests and needs of the people of Virginia in the use of pesticides on the farm, in the yard, and in the home.

When I say pesticides, I mean chemicals that are used to kill pests such as insects, weeds, plant diseases, rats, and mice.

1. Have you, yourself, ever used any pesticide? Yes (1)  No (2)

IF NO, SKIP TO INTRODUCTION TO QUESTION 3.

IF YES, ASK:

1a. To kill weeds? ..... Yes (1)  No (2)

1b. To kill insects inside the house? ..... Yes (1)  No (2)

1c. To kill insects outside, on the lawn, in flowers, on vegetable garden? ..... Yes (1)  No (2)

1d. To kill mice or rats? ..... Yes (1)  No (2)

1e. To control plant diseases such as black spot on roses? ..... Yes (1)  No (2)

IF YES TO 1a. ASK:

2. How often would you say you use weed killer? CHECK ONE

Less than once a year ..... (1)

Once or twice a year ..... (2)

Once a month during the growing season ..... (3)

More than once a month during growing season ..... (4)

IF YES TO 1c. ASK:

2a. How often would you say you use insect killers outside the house? CHECK ONE

Less than once a year ..... (1)

Once or twice a year ..... (2)

Once a month during the growing season ..... (3)

More than once a month during growing season ..... (4)

As you perhaps know, farmers and public health workers use pesticides to control and destroy the weeds and insects that attack plants, animals, and people. Some people have expressed concern over the possible dangers of the use of such pesticides.

3. Have you ever seen this matter - possible dangers of the use of pesticides - discussed on T.V.?

Yes (1)  No (2)  Don't remember (3)

4. Have you ever heard this matter discussed on the radio?

Yes (1)  No (2)  Don't remember (3)

5. Have you ever read about it in magazines or books?

Yes (1)  No (2)  Don't remember (3)

6. Have you ever discussed it with relatives or members of the family?

Yes (1)  No (2)  Don't remember (3)

7. Did your friends ever bring this subject up in a conversation?

Yes (1)  No (2)  Don't remember (3)

8. Have you ever attended a group meeting where such a concern was the topic of discussion?

Yes (1)  No (2)  Don't remember (3)

9. *KGT* Are foods checked for the presence of pesticides before they are sold?  
Yes (1)  No (2)  Don't know (3)

IF NO OR DON'T KNOW - SKIP TO QUESTION 10.

IF YES, ASK:

9a. *KGT* You mean all foods? ..... (1)   
Or some foods? ..... (2)

9b. *KGT* Will you look at this card (A) and tell me who from this list does the checking?

CHECK ALL THAT APPLY.

- |   |  |
|---|--|
| 1. Grower ..... <input type="checkbox"/>          | 5. Wholesaler ..... <input type="checkbox"/> |
| 2. Federal Government .. <input type="checkbox"/> | 6. Other (Specify) _____                     |
| 3. The store ..... <input type="checkbox"/>       | 7. Don't know ..... <input type="checkbox"/> |
| 4. State government .... <input type="checkbox"/> |  |

IF YES TO FEDERAL GOVERNMENT, ASK:

9c. *KGT* Do you know which department or agency in the Federal Government is responsible for doing the checking?

Yes (1)  No (2)  Not Sure (3)

IF YES TO ABOVE, ASK:

9d. *KGT* Which ones?

USDA (1)  HEW (FDA) (2)  Other (3)

IF YES TO STATE GOVERNMENT, ASK:

9e. *KGT* Do you know which Department or agency in the State Government is responsible for doing the checking?

Yes (1)  No (2)  Not Sure (3)

IF YES TO ABOVE, ASK:

9f. *KGT* Which ones?

Virginia Dept. of Agr.  Others

9g. Are there any Federal laws controlling the amount of pesticides that may be in food?  
KGT

Yes (1)  No (2)  Not Sure (3)

IF YES TO ABOVE, ASK:

9h. What are the names of the laws?  
KGT

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Do you believe that the government is doing all it can to adequately protect you from possible poisoning by pesticides?  
KGT

Yes (1)  No (2)  Don't know (3)

11. Will you look at this card (B) and tell me which of the items you believe to be correct?  
KGT

Federal government control of pesticides includes:

- a. Direct supervision of pesticide manufacturing and packaging plants .....
- b. Allowing sale only if pesticide can be used safely .....
- c. Allowing sale only if pesticide does what the manufacturer says it will .....
- d. Permitting sale of the most poisonous pesticides only to farmers .....
- e. Control of statements on pesticide label .....
- f. Setting retail prices of pesticides .....
- g. Don't know .....
- h. No control .....

IF g. OR h. IS CHECKED, SKIP TO QUESTION 13.

12. Will you look at this card (G) and tell me which of these things the Government should do?

CHECK ONLY ONE

- Remove all controls on the use of pesticides ..... (1) /  /
- Remove some controls on the use of pesticides ..... (2) /  /
- Leave all controls as they are ..... (3) /  /
- Put some more controls on the use of pesticides ..... (4) /  /
- Put a lot more control on the use of pesticides ..... (5) /  /
- Don't know ..... (6) /  /

13. Do manufacturers warn users when their pesticide is poisonous?

Yes (1) /  / No (2) /  / Don't know (3) /  /

IF YES, ASK:

13a. When they do warn users, how do they do it?

On the label (1) /  / Other (2) /  / Don't know (3) /  /

IF THE RESPONDENT ANSWERED NO TO QUESTION 1 ON PAGE 1 (NEVER USED ANY PESTICIDES) NOW SKIP TO QUESTION 25.

14. When you use a pesticide which you have used before, do you read the label, or do you remember how to use it without reading it again?

Read (1) /  / Remember how (2) /  / Other (3) /  /

15. Are there any particular directions on labels you can't understand or follow?

Yes (1) /  / No (2) /  / Don't remember (3) /  /

IF YES, ASK:

15a. Can you tell me what some of them are?

---



---



---

16. Do you happen to know what word is used to describe the amount of pesticide allowable by law in food or food products?

Tolerance (1) /  / Other answer (2) /  / Don't know (3) /  /

17. Where do you keep pesticides when you are not using them?

CHECK AS MANY AS APPLY

- a. In the garage ..... /  /
- b. In a garden tool shed .... /  /
- c. In the kitchen ..... /  /
- d. In the basement ..... /  /
- e. Other (Specify) \_\_\_\_\_

18. Would you say that all, most, some, or none are stored out of reach of children or pets?

- All (1) /  /
- Most (2) /  /
- Some (3) /  /
- None (4) /  /

19. Are all, most, some, or none stored under lock and key?

- All (1) /  /
- Most (2) /  /
- Some (3) /  /
- None (4) /  /

20. Have you ever used aerosol bombs containing pesticides?

- Yes (1) /  /
- No (2) /  /

IF NO, SKIP TO QUESTION 21

IF YES, ASK:

20a. What do you do with them when they are empty? CHECK AS MANY AS APPLY

- a. Throw in trash pick-up ..... /  /
- b. Burn ..... /  /
- c. Throw away ..... /  /
- d. Bury ..... /  /
- e. Other (Specify) \_\_\_\_\_

21. What do you do with empty containers of pesticides other than aerosol bombs? CHECK AS MANY AS APPLY

- a. Burn, if paper bag ..... /  /
- b. Throw in trash pick-up ..... /  /
- c. Bury ..... /  /
- d. If bottles, wash and use for storage of other liquids ..... /  /
- e. Other (Specify) \_\_\_\_\_
- f. Don't use ..... /  /

22. What do you do with left-over pesticide spray material?  
CHECK AS MANY AS APPLY

- a. Dump on ground .....
- b. Leave in sprayer for next time .....
- c. Pour down drain .....
- d. Keep in a container, but not in sprayer .....
- e. Don't have any left over - make just  
what is needed .....
- f. Other (Specify) \_\_\_\_\_
- g. Have never used a pesticide in a sprayer .....

23. Will you look at this card (D) and tell me which of these ways help you  
decide which pesticide to buy? CHECK AS MANY AS APPLY

- a. Advertisement:
  - (a) In newspaper .....
  - (b) On TV .....
  - (c) On radio .....
  - (d) In magazine .....
- b. Ask a friend .....
- c. Ask the Extension agent (county agent) .....
- d. Ask the storekeeper or clerk .....
- e. Ask a nurseryman .....
- f. Ask V.P.I. (Va. Tech) .....
- g. Ask the State Department of Agriculture .....
- h. Look through the various pesticides on  
the shelf at the store .....
- i. Read about the correct pesticide in a  
book, magazine, or recommendation sheet .....
- j. Use the one I have used for years .....
- k. Family member told me what to buy .....
- l. Other (Specify) \_\_\_\_\_
- m. I don't buy them .....

24. Will you look at this card (E) and tell me which of these methods you use to find out how to use a pesticide? CHECK AS MANY AS APPLY

- a. Ask a friend ..... /
- b. Recall what I have read about it ..... /
- c. Read the instructions printed on the package ..... /
- d. Ask the person who sold it to me ..... /
- e. Ask the county agent ..... /
- f. Ask a nurseryman ..... /
- g. Look in bulletin or article I have seen  
about the pesticide ..... /
- h. Ask a family member ..... /
- i. Other (Specify) \_\_\_\_\_

25. I have some books listed here. As I name each one, will you tell me whether you have heard of it, whether you have read it, and whether it discusses pesticides?

	Heard of?	Read?	Discusses Pesticides?
a. DEERSLAYER by James Fenimore Cooper .....	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>
	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>
			DK (3) / <input type="checkbox"/>
-----			
b. SILENT SPRING by Rachel Carson .....	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>
	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>
			DK (3) / <input type="checkbox"/>
-----			
c. TO KILL A MOCKINGBIRD by Harper Lee .....	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>
	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>
			DK (3) / <input type="checkbox"/>
-----			
d. BUGS OR PEOPLE? by Wheeler McMillen .....	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>	Yes (1) / <input type="checkbox"/>
	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>	No (2) / <input type="checkbox"/>
			DK (3) / <input type="checkbox"/>

26. What effect do you think the use of pesticides has on the quality of  
 AC foods produced: Improves quality, lowers quality, or has no effect?

Improves quality ..... (1)

No effect ..... (2)

Lowers quality ..... (3)

Improves some, lowers others ..... (4)

Don't know ..... (5)

27. I have a short list of items here. As I read each one, will you tell  
 AC me whether you think it is one of the results of the use of pesticides?

	Yes (1)	No (2)	Don't know (3)
a. Control of malarial mosquitoes .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Reduction of amount of sleeping sickness (equine encephalitis) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Reduction of the number of fish in some places or areas .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Control of fleas and flies that carry disease .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Reduction in the number of birds .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. Will you look at all the items on this card (F), and then tell me  
AC which you think are the most significant or important effects of pesticides?

DO NOT CHECK ALL - CHECK ONLY MOST IMPORTANT

- a. Kill ants .....
- b. Protect apples from insects .....
- c. Kill harmful bugs on food crops .....
- d. Kill bugs on roses .....
- e. Harm children and pets .....
- f. Kill fish .....
- g. Kill mosquitoes .....
- h. Upset nature .....
- i. Harm people using them .....
- j. Kill robins .....
- k. Protect shrubs from disease .....
- l. Kill starlings .....
- m. Kill weeds in lawn .....
- n. None is important .....

- 11 -

29. Will you look at this card (G) and tell me whether you think the use of weed killers by farmers helps produce any of the listed results?  
AC

CHECK AS MANY AS APPLY:

- |                              |                          |                                |                          |
|------------------------------|--------------------------|--------------------------------|--------------------------|
| a. More food .....           | <input type="checkbox"/> | e. Better food .....           | <input type="checkbox"/> |
| b. Less food .....           | <input type="checkbox"/> | f. Food dangerous to eat ..... | <input type="checkbox"/> |
| c. More expensive food ..... | <input type="checkbox"/> | g. None of these .....         | <input type="checkbox"/> |
| d. Cheaper food .....        | <input type="checkbox"/> | h. Don't know .....            | <input type="checkbox"/> |

30. In general, do you feel pesticides make it easy for a person:

- |                                      |                                  |                                 |                                 |
|--------------------------------------|----------------------------------|---------------------------------|---------------------------------|
| a. To control insects or bugs? ..... | Yes (1) <input type="checkbox"/> | No (2) <input type="checkbox"/> | DK (3) <input type="checkbox"/> |
| b. To control weeds? .....           | Yes (1) <input type="checkbox"/> | No (2) <input type="checkbox"/> | DK (3) <input type="checkbox"/> |
| c. To control plant diseases? .....  | Yes (1) <input type="checkbox"/> | No (2) <input type="checkbox"/> | DK (3) <input type="checkbox"/> |
| d. To control rats and mice? .....   | Yes (1) <input type="checkbox"/> | No (2) <input type="checkbox"/> | DK (3) <input type="checkbox"/> |

31. Will you look at this card (H)? Do you believe any of these people are in any danger from the use of pesticides?  
KC

CHECK AS MANY AS APPLY.

- |  | <u>QUESTION 31</u>       | <u>QUESTION 31a</u>      |
|--|--------------------------|--------------------------|
| a. The people who make the pesticides .....                                    | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Applicators (farmers or commercial persons who put the pesticides on) ..... | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Harvesters of food .....  | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Retail dealers (handlers, salesmen, warehousemen) .....                     | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Consumers who eat food treated with pesticides .....                        | <input type="checkbox"/> | <input type="checkbox"/> |
| f. None is in danger .....   | <input type="checkbox"/> | <input type="checkbox"/> |

IF MORE THAN ONE WAS CHECKED FOR 31, ASK:

31a. Which one do you believe was exposed to the greatest risk?

KG

CHECK ABOVE

IF b. for 31 (APPLICATORS) WAS NOT CHECKED - SKIP TO QUESTION 33.

32. If a farmer carefully follows the manufacturer's directions for use of pesticides, do you feel there is any danger to him?

KG

Yes (1) /  / No (2) /  / Don't Know (3) /  /

IF YES,

32a. Would you say a great deal, some, or a very little?

KG

A great deal (1) /  / Some (2) /  / Very little (3) /  /

33. What do you usually do before eating a raw apple or pear? CHECK ONLY ONE

Peel it ..... (1) /  /

Wash it or rinse it ..... (2) /  /

Wipe it off ..... (3) /  /

Nothing ..... (4) /  / SKIP TO QUESTION 34.

33a. Why do you do it?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

34. Do you think in Richmond/Roanoke there are fewer birds than there used to be, more birds, or about the same number as always?

Fewer birds than there used to be ..... (1) /  /

More birds than there used to be ..... (2) /  /

About the same number as always ..... (3) /  /

Don't know ..... (4) /  /

IF FEWER, ASK:

34a. Why do you think there are fewer?

\_\_\_\_\_  
\_\_\_\_\_

35. Do you feel that pesticide sprays and dusts endanger wildlife that  
 KG may come into contact with them?

Yes (1)  No (2)  Don't Know (3)

IF YES,

35a. Would you say: A great deal, some, very little, or none?  
 KG

A great deal (1)  Some (2)  Very little (3)

36. I am going to read a number of statements which one might hear concerning pesticides or their use. For each one, as I read it, will you indicate whether you Strongly Agree (SA) with the statement, Agree (A), are Undecided (U), Disagree with it (D), or Strongly Disagree (SD). These responses are listed on this card.

HAND RESPONDENT CARD (I).

Please consider each statement by itself and in its entirety when expressing your opinion.

AG a. In order to continue to produce an abundant supply of food,  
 farmers must use pesticides.

SA (1)  A (2)  U (3)  D (4)  SD (5)   
 No Opinion (6)

AG b. If pesticides were not used, people would be healthier and happier.

SA (1)  A (2)  U (3)  D (4)  SD (5)   
 No Opinion (6)

AG c. The use of pesticides has done little to control the spread of pests.

SA (1)  A (2)  U (3)  D (4)  SD (5)   
 No Opinion (6)

AG d. There is little reason to fear pesticides.

SA (1)  A (2)  U (3)  D (4)  Sd (5)   
 No Opinion (6)

KG e. If pesticides are used properly, people can avoid any harm from them.

SA (1)  A (2)  U (3)  D (4)  SD (5)   
 No Opinion (6)

*ACT* f. Farmers should be allowed to use pesticides as they choose.

SA (1)  A (2)  U (3)  D (4)  SD (5)

No Opinion (6)

*AG* g. If pesticides were not used, the American people might become short of food.

SA (1)  A (2)  U (3)  D (4)  SD (5)

No Opinion (6)

*KG* h. There have been deaths due to poor handling of pesticides.

SA (1)  A (2)  U (3)  D (4)  SD (5)

No Opinion (6)

*KG* i. Pesticides should not be put in unlabeled bottles or bags.

SA (1)  A (2)  U (3)  D (4)  SD (5)

No Opinion (6)

37. In general, do you feel pesticides are pretty dangerous to work with?

Yes (1)  No (2)  No opinion (3)

*ACT* 38. Do you think that certain pesticides should be available only on a prescription basis, like many medicinal drugs for people?

Yes (1)  No (2)  No opinion (3)

39. I would like to ask you how concerned you think various people or groups are about the possible harmful effects from the use of pesticides.

Here is a card (J) with a listing of degrees of concern that I would like you to use in answering my questions.

HAND CARD TO RESPONDENT AND READ CARD.

	Not concerned about the effects	A little concern- ed	Quite con- cern- ed	Very much con- cern- ed	Don't know
	(1)	(2)	(3)	(4)	(5)
First of all how concerned are you? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How concerned are:					
The general public .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical Manufacturers .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Congress .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food & Drug Administration .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Dept. of Agriculture .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Va. Dept. of Agriculture .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
State legislators .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
V.P.I. (Va. Tech) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extension agents .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. Are the following of serious concern to you?

- a. Pollution of the air by smoke ..... Yes (1)  No (2)  No opinion (3)
- b. Foreign relations ..... Yes (1)  No (2)  No opinion (3)
- c. Contamination from radioactive fallout ..... Yes (1)  No (2)  No opinion (3)
- d. Inflation ..... Yes (1)  No (2)  No opinion (3)
- e. Pollution of Virginia rivers and streams .... Yes (1)  No (2)  No opinion (3)

We have a few other questions to ask which will provide us with information that will help us tabulate and analyze the data.

DO NOT ASK QUESTION 41

41. Sex:

Male (1)  Female (2)

42. How many children under 15 years of age live here?

CHECK ONE

0 (1)  1-3 (2)  4 or more (3)

43. Do you have any pets?

CHECK AS MANY AS APPLY

- a. Dogs .....
- b. Cats .....
- c. Birds .....
- d. Fish .....
- e. Other (Specify) \_\_\_\_\_
- f. None .....

44. Where did you live most of your life before you were 18? (READ RESPONSES)

On a farm or ranch, ..... (1)

In the country but not on a farm, ..... (2)

In a town under 2,500, or ..... (3)

In a city? ..... (4)

45. What is your occupation? We would like you to be specific.

TELEPHONE LINEMAN, RATHER THAN WORK FOR THE TELEPHONE COMPANY.

46. What is your age?

15-19 ..... (1)

20-29 ..... (2)

30-39 ..... (3)

40-49 ..... (4)

50-59 ..... (5)

60-69 ..... (6)

70 & over ..... (7)

47. What is the highest grade in school you had an opportunity to complete?  
CHECK

Elementary			High School		College		Beyond College
1 - 4	5 - 6	7 - 8	1 - 3	4	1 - 3	4	(8)
<u>years</u>							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
<input type="checkbox"/>							

48. Have you had, in addition to the above, at least a school-year of training in business, nursing, or other technical specialty?

Yes (1)  No (2)

49. Have you purchased a fishing or hunting license during the last three years?

Yes (1)  No (2)

50. Now we would like to ask about some of the special interests you have. For each of the interests I name, will you tell me if you participate in it or have only general interest in it, or have no interest in it?

	<u>I</u> <u>participate</u> (1)	<u>General</u> <u>interest</u> (2)	<u>No</u> <u>interest</u> (3)
a. Bird watching ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Boating .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Camping .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Collecting insects .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Discussion groups .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Fishing .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Flower arranging .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Golf .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Hiking .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Hunting .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Nature study .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Raising flowers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Reading books ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Swimming .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Vegetable gardening .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

51. We need to know some of your interests and participation in certain organizations during the past 12 months. For each of the organizations named will you tell me: a. Were you a member? b. Did you usually attend meetings? c. Did you serve on any committees? d. Did you hold any offices?

CHECK IF YES

	a. Member	b. Usually attended meetings	c. Served on committee	d. Held office
PTA .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Audubon .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garden Club .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rotary .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kiwanis .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lions .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toastmasters .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A sportsman club (Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Home Demonstration Club .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AAUW .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
League of Women Voters .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

52. Do you have a working radio? Yes (1)  No (2)

IF NO, SKIP TO QUESTION 59.

53. When do you (RESPONDENT) usually listen to the radio? CHECK ONE OR MORE.

- |                    |                          |  |                          |
|--------------------|--------------------------|--|--------------------------|
| a. 5-9 a.m.....    | <input type="checkbox"/> | d. 1-6 p.m.....                        | <input type="checkbox"/> |
| b. 9-12 noon ..... | <input type="checkbox"/> | e. 6-12 p.m.....                       | <input type="checkbox"/> |
| c. 12-1 p.m.....   | <input type="checkbox"/> | f. Don't usually<br>listen to .....    | <input type="checkbox"/> |
|                    |                          | g. Don't ever listen<br>to radio ..... | <input type="checkbox"/> |

IF DON'T USUALLY LISTEN, SKIP TO QUESTION 55.

IF DON'T EVER LISTEN, SKIP TO QUESTION 59.

54. What stations do you usually listen to? INSERT STATION CALL LETTERS

\_\_\_\_\_

\_\_\_\_\_

IF 53 c. (From 12-1 p.m.) WAS CHECKED, SKIP TO QUESTION 56a.

55. Do you ever listen to the radio between 12 noon and 1:00 p.m. on week-days?

Yes (1) /  / No (2) /  /

IF NO, SKIP TO QUESTION 57.

IF YES, ASK QUESTION 56 and SKIP QUESTION 56 a.

56. How often?

	QUESTION 56	QUESTION 56a
Every day (4 to 5 times a week) .....	(1) / <input type="checkbox"/> /	(1) / <input type="checkbox"/> /
2-3 times a week .....	(2) / <input type="checkbox"/> /	(2) / <input type="checkbox"/> /
Once a week to once every two weeks .....	(3) / <input type="checkbox"/> /	(3) / <input type="checkbox"/> /
Less than twice a month .....	(4) / <input type="checkbox"/> /	(4) / <input type="checkbox"/> /

56a. How often do you listen between 12 noon and 1:00 p.m. on week-days?  
CHECK ABOVE.

57. During the last month or so, do you remember hearing anything on the radio about?

	Yes (1)	No (2)	Don't remember (3)
Medicare? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
Pesticides? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
Vietnam? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
Hungary? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
Irish Rebellion? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
Civil Rights? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /

IF YES TO PESTICIDES, ASK:

57a. \* You said you heard something about pesticides in the past month or so. What were they talking about?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

58. Have you heard a radio program from V.P.I. (Va. Tech) in the past month or so?

Yes (1) /  / No (2) /  Don't remember (3) /

59. Do you have a working television?

Yes (1) /  / No (2) /

IF NO, SKIP TO QUESTION 67.

60. When do you (RESPONDENT) usually watch TV? CHECK ONE OR MORE

- a. 5-7 a.m. ....
- b. 7-10 a.m. ....
- c. 10-12 noon ....
- d. 12-4 p.m. ....
- e. 4-6 p.m. ....
- f. 6-8 p.m. ....
- g. after 8 p.m. ....
- h. Don't usually watch TV ....
- i. Don't ever watch TV ....

IF DON'T USUALLY WATCH, SKIP TO QUESTION 62.

IF DON'T EVER WATCH, SKIP TO QUESTION 67.

61. What stations do you usually watch? INSERT CHANNEL NUMBERS

---

62. Do you ever watch TV at 6:30 a.m. on week days?

Yes (1) /  / No (2) /  /

IF NO, SKIP TO QUESTION 63.

IF YES,

62a. How often?

Every day (4 to 5 times a week) ..... (1) /  /

2-3 times a week ..... (2) /  /

Once a week to once every  
two weeks ..... (3) /  /

Less than twice a month ..... (4) /  /

63. During the past month or so do you remember having seen any programs on:

	Yes (1)	No (2)	Don't remember (3)
a. Medicare? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
b. Pesticides? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
c. Vietnam? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
d. Hungary? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
e. Irish Rebellion? ....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /
f. Civil rights? .....	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /	/ <input type="checkbox"/> /

IF YES TO PESTICIDES, ASK:

64. What was the pesticide program about, if you remember?

\*

---



---

65. Have you seen a program from V.P.I. in the past month or so?

\*

Yes (1) /  / No (2) /  / Don't remember (3) /  /

IF YES,

65a. What was it about?

---



---

66. Have you ever seen a spot announcement on TV with a cartoon character  
\* that looks like this?

SHOW CARD (K) WITH LARRY THE LABEL PICTURE

Yes (1) /  / No (2) /  Don't remember (3) /

IF YES,

66a. What was or were the announcement(s) about?

---



---



---

66b. Do you happen to remember the character's name?

---

67. Do you get a daily newspaper?

Yes (1) /  / No (2) /

IF NO, SKIP TO QUESTION 68.

IF YES, ASK:

67a. Which one (s) do you get?

---



---

67b. Do you usually look through the newspaper?

Yes (1) /  / No (2) /

IF NO, SKIP TO QUESTION 68.

IF YES, ASK:

67c. How often is usually?

- Every day (5-6 days) ..... (1) /  /
- 2-4 times a week ..... (2) /  /
- Once a week to once  
every two weeks ..... (3) /  /
- Less than twice a month ..... (4) /  /

67d. Which sections do you usually read when you have time?

- a. Front page news ..... /  /
- b. Sports ..... /  /
- c. Society ..... /  /
- d. Garden section ..... /  /
- e. Comics ..... /  /
- f. "Dear Abby" ..... /  /
- g. State-local news ..... /  /
- h. Editorials ..... /  /
- i. Columnists ..... /  /
- j. Other (Specify) \_\_\_\_\_

68. Do you get a Sunday paper?

Yes (1) /  / No (2) /  /

IF NO SKIP TO QUESTION 69.

IF YES, ASK:

68a. Which ones do you get?

---



---



---

68b. Do you usually look through it?

Yes (1) /  / No (2) /  /

IF NO SKIP TO QUESTION 69.

IF YES, ASK:

68c. How often is usually?

Every week ..... (1) /  /

1-3 times a month ..... (2) /  /

Less than once a month ..... (3) /  /

68d. Which sections do you usually read when you have time?

a. Front page news ..... /  /

b. Sports ..... /  /

c. Society ..... /  /

d. Garden section ..... /  /

e. Comics ..... /  /

f. "Dear Abby" ..... /  /

g. State-local news ..... /  /

h. Editorials ..... /  /

i. Columnists ..... /  /

j. Other (Specify) \_\_\_\_\_

69. Have you read any articles on pesticides in a newspaper during the past month or so?

Yes (1) /  / No (2) /  / Don't remember (3) /  /

IF YES, ASK:

69a. What was it about?

\*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## HAND RESPONDENT PAMPHLET

70. Have you ever seen this pamphlet?

\*  
Yes (1)  No (2)  Don't remember (3)

IF NO OR DON'T REMEMBER - INTERVIEW ENDS

IF YES, ASK:

70a. Where did you see it?

---

---

70b. Have you read this pamphlet?

Yes (1)  No (2)  Don't remember (3)

70c. Do you have a copy of this pamphlet?

Yes (1)  No (2)  Don't remember (3)

70d. Have you ever told anyone else about this pamphlet, or shown it to anyone?

Yes (1)  No (2)  Don't remember (3)

70e. Have you discussed it with anyone?

Yes (1)  No (2)  Don't remember (3)

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the scanned document**

ANALYSIS AND EVALUATION  
OF A CHEMICAL PESTICIDE INFORMATIONAL PROGRAM  
PLANNED FOR AN URBAN AUDIENCE

by

William A. Hamilton

ABSTRACT

This thesis was designed to assess the effectiveness of the Virginia Cooperative Extension Service's Information Project in reaching an urban audience, as could be determined by analyzing results from a planned informational program involving chemical pesticide information.

Data for the analyses were extracted from a primary study, "The Effect of a Planned Communications Program on Change of Attitude and Knowledge of the Urban Dweller Toward Chemicals and Pesticides," Budget Bureau No. 40-6673, financed by a grant from the Federal Extension Service, United States Department of Agriculture.

The sample considered was comprised of 597 residents of Richmond, Virginia who were interviewed following conduct of the planned informational program, which used television, radio, newspapers, and a publication. Knowledge and attitude scores of people exposed to the program were tested against 12 variables for significant differences. Statistical methods included frequency distribution, percentage, and t test for significance.

Analyses indicated that 140 individuals in the sample (23.45%) had been contacted by mass media. Television had the most contacts; 85

people (14.24%) saw information contained in the planned program. Radio contacted 11 people (1.84%); the newspaper contacted five people (.84%); the publication contacted 16 individuals (2.68%). Of the 48 score comparisons, five showed a significant difference at the 5% level of probability. These were explained as occurring in a chance, non-related pattern.

The conclusion was that the planned communications program was ineffective in increasing knowledge and promoting favorable attitudes toward chemical pesticides in the urban audience for which it was designed.