

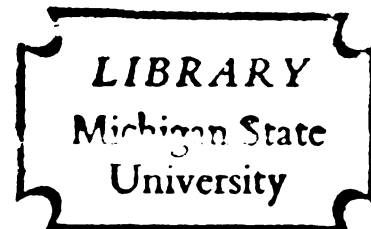
THE USE OF TELEVISION FOR
INSTRUCTION IN ADULT EDUCATION

THESIS FOR THE DEGREE OF PH.D.

MICHIGAN STATE UNIVERSITY

ROBERT PAUL WORRALL

1965



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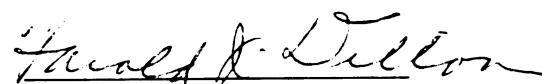
The use of television for
Instruction in Adult Education

presented by

Robert Paul Worrall

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Education


Major professor

Date December 10, 1964

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ABSTRACT

THE USE OF TELEVISION FOR INSTRUCTION IN ADULT EDUCATION

by Robert Paul Worrall

Administrators of adult education programs in local communities have identified the problem of obtaining qualified instructors as one of the most difficult they face. Television, in a number of studies, has proved to be effective as a medium for teaching large numbers of people at different locations simultaneously. Most of these studies, however have been conducted under closed circuit conditions where the variables so prevalent in social science research can be somewhat controlled.

In an effort to determine the practicality of utilizing television for instruction in adult education a case study was conducted during 1960, 1961, and 1962 based on the production, distribution and evaluation by viewers of the television series "Plants are for People." The original series of thirteen thirty minute programs were produced and distributed by the Cooperative Extension Service of Michigan State University throughout Michigan during 1960 and 1961. During 1961 a second series consisting of ten programs was distributed in Michigan, Ohio, Illinois and New York.

Four general hypotheses were tested during the time the series was being distributed in Michigan during 1960 and 1961. Each was supported in terms of the stated criteria.

1. Resources for producing a successful series of educational television programs based on gardening and ornamental horticulture can be mobilized on a Land Grant University campus.

2. A series of educational television programs based on gardening and ornamental horticulture can be accepted by commercial television stations for broadcast.

3. A series of educational television programs based on gardening and ornamental horticulture can be broadcast at desirable time periods on commercial television stations.

4. Subject matter relating to gardening and ornamental horticulture can be successfully transmitted by television.

Two general hypotheses and thirteen specific hypotheses were tested following broadcast of the experimental series on the educational television station of The Ohio State University. The general hypotheses stated:

1. Knowledge of specific recommended practices in gardening and ornamental horticulture can be successfully communicated through the use of open circuit television.

2. Increased knowledge of specific recommended practices in gardening and ornamental horticulture resulting from a series of open circuit television programs will be influenced by the socio-economic characteristics and the communications habits of the viewers.

The general hypotheses were supported, however only seven of thirteen specific hypotheses relating to second general hypotheses were supported.

Robert Paul Worrall

In general, there was no significant increase in ability to answer questions based on recommended practices in gardening and ornamental horticulture among those with different levels of income, tenure at and address, ownership status, education, or motivation for gardening and lawn activity. Significant increases were noted among those with greater variety of interests in gardening and ornamental horticulture, more leisure time spent in gardening or reading about gardening, membership in garden clubs, subscription to publications featuring gardening and ornamental horticulture, and use of Cooperative Extension Service information.

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FOR INSTRUCTION IN
ADULT EDUCATION

By

Robert Paul Worrall

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Adult and Higher Education

1965

ACKNOWLEDGMENTS

The author is deeply indebted to many individuals and organizations both in the educational and the commercial realm for assistance in connection with this study. It is hoped that the procedures and results reported herein will be of help to some of these individuals and groups and in some small measure repay some of their time.

Particular credit is due Dr. Harold J. Dillon, who long ago expressed the kind of confidence which stimulated the author to carry this project through to completion. Dr. Dillon exercises the kind of thoughtful counsel which motivates the researcher to move ahead.

Dr. Donald P. Watson gave active encouragement to the study and backed it up with personal interest in all phases of the project.

Nell Adams Worrall, almost without equal, has contributed to this project in terms of sacrifice of material things and personal companionship.

Florence Eckert, a most capable secretary, not only has had to deal with the typing of the manuscript but also with many tedious details of table construction.

Dr. Everett M. Rogers was helpful in helping define the problems to be studied, and in the early stages of selecting methodology.

Dr. Francis Walker provided invaluable assistance in connection with selecting the statistical procedure for testing the value of findings.

The management of WMSB, the television station of Michigan State University, and WOSU-TV the station of Ohio State University, made possible the broadcasting of the series upon which the study was based.

Gratitude is likewise expressed to the Administrative staff of the Michigan and Ohio Cooperative Extension Services for permitting the production, circulation and evaluation of the experimental series.

In particular, the author acknowledges the assistance of Fred I. Jones, Agricultural Editor of The Ohio State University, and James Caldwell, Extension Specialist in Horticulture, for assistance in obtaining information from viewers of the test programs.

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INTRODUCTION

The rapid growth of leisure time is bringing about great changes in the value system of the American people. The work ethic is under fire at all levels in our society. Increased automation since the end of World War II has made it difficult to find satisfaction in many jobs. Shorter working hours, longer paid vacations, lightening of house work, all force upon Americans a great burden of choice in the use of their leisure time.

Trends seem to indicate work weeks of 30 to 35 hours in the next 10 to 20 years and continuing declines beyond that to about 28 hours by the year 2000. Another important element is that of increased income not only in total dollars but in terms of real purchasing power. Since 1947 average family income has grown from \$3000 to \$5400 or about 47 percent. The important factor, however, is that inflation did not account for all the increase. In terms of a constant dollar value for 1959 the average family income increased from a value of about \$4000 in 1947 to \$5400 in 1959 or about \$120 per year of real increase in purchasing power.

This increased purchasing power has as much to do with the trend to outdoor living as does the increased leisure time which some writers feel is a myth. Studies show, on the other hand, that people with higher incomes do more gardening, touring, camping, and other outdoor activities. In addition, as incomes increase, people spend more days per year in these activities. Still more important, as expendable income rises, they spend a larger proportion of it on outdoor living.

What are these values which appear to be changing in America as the work ethic grows less important? Values are the things we believe to be right or wrong, good or bad. Values form the basis of our decision making. They are curious things. While they are real, they are not directly visible. We can see them only indirectly. We do not, however, live in a vacuum of personal interests and likes or dislikes. Our behavior is determined by our values as they are related to other things that go on around us. As a matter of fact, these immaterial things give us the meaning for the material which in turn gives us the worth and meaning of life as R. T. Flewelling^{1/} has said:

....often our minds are so intoxicated with the wine of physical invention and discovery that we think of matter as the only reality. The deeper fires that burn within the mental experience of man, that give inspiration to creative art, literature, social and spiritual achievement or even to scientific invention, are easily passed over as unreal. Yet these are the determining influences of life.....

Recently, we have had our attention called to certain values that are shared by many in our society and which tend to illustrate the effect of changes in our way of life. Both Presidents Eisenhower and Kennedy have called for direct attention to the matter of physical fitness. In addition, President Kennedy added emphasis to a second value, that of more personal participation rather than merely viewing physical activity.

Presumably, the value of good physical condition has been called to our attention because it is believed that the manpower of this

^{1/} Flewelling, Ralph Tyler, "The Things That Matter Most," an approach to the problems of human values, The Ronald Press Company, New York, 1946, p. 6.

nation must be physically ready for national defense and that, as a nation, we have deteriorated in this respect. The value of personal participation seems to be based on the premise that actual individual activity advances mental as well as physical well being, requiring the individual to make decisions on his own and put them into action rather than being a submissive follower and latent viewer from afar. Certainly outdoor living, including active participation in gardening and lawn work, provides opportunity for meeting the needs related to these values.

Although they are intangible, values have concrete consequences. Indications that values about the out-of-doors and space are important to a large segment of the population are shown by such things as the move to the rural suburbs, the rising rate in the use of parks, the increasing travel to outdoor spots, and by the increasing amount of money spent for boats, tents, lawnmowers and other outdoor paraphernalia.

Fortune Magazine^{2/} reported ten years ago:

..... If real consumer income keeps going up at the 1947-53 rate through 1959 and is distributed about as in 1953, then leisure spending could rise from the present \$30.6 billion to a little over \$39 billion..... Several items within the \$18 billion primary leisure group, notably spectator sports and amusements (including movies), and books, magazines and newspapers, show limited promise, though they all should rise moderately, but others should rise substantially. Gardening up from \$500 million in 1947 to almost \$700 million in 1953, should reach perhaps \$900 million by 1959, since the largest gardening expenditures

^{2/} Larrabee, Eric, and Meyersohn, Rolf, "Mass Leisure," Free Press, Glencoe, Illinois, 1958, pp. 171-172.

come when a new home is first being landscaped and planted, and the housing boom, as yet, shows no signs of tapering off. Home power tools should grow from the present \$200 million to say \$300 million, with the 1947-53 growth rate flattening a bit as this market shifts toward a replacement basis.

Outdoor recreation seems sure to enjoy a healthy growth. Total boat expenditures may surpass \$1 billion by 1959, against 1953's figure of \$800 million; and the durable and non-durable recreational goods market, which rose from \$1.8 billion in 1947 to nearly \$28 billion in 1953, should show about the same growth and perhaps even reach \$3 billion by 1960.all in all, there might be a \$2 billion advance in the \$9 billion spending on primary leisure other than travel, but the biggest promise of new leisure expenditures lies in foreign and domestic vacations. Foreign pleasure travel, up about \$100 million a year over the last six years to the present \$1.1 billion figure, should rise to \$1.5 billion by 1959 or 1960, assuming present travel costs and domestic vacation spending will probably rise from the present \$8 billion to about \$10 billion.extra leisure time tends to result in extra leisure spending. Thus the leisure market may eventually become the dynamic component of the whole American economy. For while consumer appetites for necessities may become sated, where is the limit to the market for pleasure?

Time proved many of these predictions by the editors of Fortune Magazine to be conservative. The 1962 issue of Survey of Current Business shows that consumer expenditures for flowers, seeds and potted plants alone amounted to \$905 million in 1959 in contrast to Fortune's prediction for all gardening of "nearly \$900 million by 1959." This category obviously omits sizeable expenditures for lawn and garden equipment, fertilizers, herbicides, insecticides, and fungicides.

Although statistics on all phases of outdoor living are sparse, it is estimated that the amount spent for garden supplies and equipment, patio furniture, and barbecue equipment was on the order of

four billion dollars in 1959 or only slightly less than was spent directly for education or for religious and welfare activities.

The Department of Commerce^{3/} in its survey of Current Business, publishes accurate figures relative to expenditures for "flowers, seeds, and potted plants." Regardless of the motivation of modern gardeners, this publication shows for the years 1956 through 1961 this classification showed a 37 percent increase which was surpassed only by commercial participant amusements, radio and TV repair, books and maps, and legitimate theaters and entertainment of non-profit organizations.

Bogart^{4/} gives two principal reasons why people today have more free time on their hands:

.....(1) They are spending fewer and fewer hours at work because of a steady decline in the average length of the work week and a constant increase in vacation and holiday time. A century ago the average work week was 70 hours. It will be 35½ by 1960. For every waking hour the average American worker spends at his job each week he has two to spend at his discretion. Part of this must go for transportation, eating, and life's necessary tasks, but the bulk of it is free for him to follow his own inclinations.

(2) Apart from work, life in mid-20th century America is more convenient for most people than it ever was in most other times and places. Labor saving gadgets and devices have reduced the modern housewife's burdens. Her chores are more quickly done, even though she is less likely to have the aid of a domestic servant than was her mother or grandmother.

^{3/} Survey of Current Business, United States Department of Commerce, 1962, p. 13.

^{4/} Bogart, Leo, "The Age of Television," Frederick Unger Publishing Company, New York, 1958, pp. 5-7.

The literature in the area of leisure time, its causes, its prevalence, and its implications is voluminous. Most writers base their thesis on the quantitative analysis that the actual hours available to Americans for their use in non-work activities is on the increase. This study, on the other hand, includes a qualitative analysis of the time available to persons for decisions as to its use. The increasing affluence of Americans and the creative use of leisure time are not necessarily compatible and, in fact, often mutually exclusive. It is true that not only because of less total working hours but because of less strenuous working conditions many workers return to their homes early enough and with sufficient energy remaining to indulge in physical activity, indeed often strenuous physical activity. It can be argued that automated factories and air-conditioned offices make outdoor physical activity highly important to meet the imperatives for physical and mental health as set forth by Presidents Eisenhower and Kennedy. It must be recognized, however, that the values which impel men and women to hurry home from work to get in nine holes of golf, water ski till dark, or join the weekly bowling team may be different from the values that impel them to move to the suburbs or buy a home with a larger lawn and perhaps space for a garden. The latter can be construed as a function of the traditional work ethic while the former may be largely a function of increased purchasing power. Indeed the value conflict brought on by increased purchasing power and less time required on the job conflicting with traditional values of work and frugality may be one explanation for the frenzied efforts many people

are making to fill up so called leisure time with activity. Ennis^{5/}
 sheds some light on these value conflicts when he says:

.....These then are the three defining features of leisure. It is institutionally interstitial, unordered in its uses and values, and normatively indefinite with its sanctions at the extreme, minimal.it is this character of leisure rather than its sheer increase that lies at the root of the much discussed "problem of leisure." People don't or won't know what to do with their expanded free time because the values and norms which might guide them are either too conflicting or too attenuated.

Not only is the use of leisure time in conflict but the very existence of it as pointed out by de Grazia:^{6/}

.....A glance at the best figures available.....reveals that since 1850 the average work week has been reduced by about 31 hours. Thus, on the face of it, free time has increased by 31 hours a week.rough estimates today would set the number of days of paid vacations, holidays and sick leave at about 15. So to our gain of 31 hours a week since 1850, we can add 2 or 2½ hours for "fringe benefits."

There are two more factors to be taken into account in considering the increase in free time nowadays. Both came in the older end of the age scale. First, customs, law, and regulations have lowered the age of retirement to 60 or 65. For the individual this can free years of time. The second is the increase in life expectancy over the last century.....A year of work today does not equal a year of work two decades ago, since the work week is shorter now by 31 hours.....The work week of the average American male who works full time.....is at least 35 hours a week. Many persons, concerned over the softening of pioneer fiber, may be pleased to know that

5/ Ennis, Phillip H., "Leisure in the Suburbs: Research Prolegomenon," cited in *The Suburban Community* by William M. Dobriner, G. P. Putnam's Sons, New York, 1958, p. 260.

6/ de Grazia, Sebastian, "Of Time, Work and Leisure," *The Twentieth Century Fund*, New York, 1962, p. 62.

this individual works 48 hours a week.....adjusting then for part time our rough calculation runs something like this:

69.7	work hours in 1860
-39.5	work hours in 1956
30.2	gross for time
2.5	for vacations, etc.
32.7	
-7.5	for correction to full time employees
25.2	

The full time worker's gain in free time since 1850 is thus closer to 25 hours.....11 percent of the work force, then, averaging 12 hours a week of moonlighting, takes away about $1\frac{1}{2}$ hours a week from the free time of each employee....an allowance of about one hour a week seems reasonable, bringing the change from 1850 down to 24.2 hours....almost $8\frac{1}{2}$ hours a week are used for journeys to work, which brings the change since 1850 down to not quite 16 (15.8) hours.... Men put in on the average nearly five (4.8) hours a week in miscellaneous work (not hobbies) around the house....we stand now at a gain of about 11 hours in free time over 1850....on the average, men put in about $2\frac{1}{4}$ hours a week on household chores, housekeeping and shopping exclusive of preparing food....we now have exactly $8\frac{1}{2}$ hours left of the 1850-1950 30 odd hours gain in free time.

de Grazia, in this analysis, takes a gross view of mankind exemplified by spreading the 12 hours average weekly time spent in extra work over all employed workers. He fails to recognize that travel to and from work in 1850 did also occupy some time, because while most workers no doubt lived closer to their work, transportation was correspondingly slower. He also charges each worker with nearly five hours of miscellaneous "work" around the house each week. Although he does not define it, could it be that a good portion of this time goes toward maintaining the lawn and garden? Possibly another large proportion is spent in painting, changing storm windows and

miscellaneous maintenance jobs around the house and grounds. The point to be made is that de Grazia's "work" may be another man's relaxation.

The focus of this study is that part of so called leisure time which is spent at home caring for the lawn and grounds.

McKay^{7/} in his book "Farming and Gardening in the Bible" sets forth an aesthetic as well as an historical view of gardening which presumably colors the attitude of many a homeowner in this modern day:

.....To us, a garden commonly brings to mind a small plot of land on which we may grow flowers and fruit, vegetables and herbs, a place to walk along narrow paths, and look down on nature's beauty and bounty. To the ancients, a garden was predominantly a garden of trees, a place of shade from the heat of the sun, refreshed by brooks or fountains.....gardening was the hobby and the pride of kings and princes, and ornament of splendor and luxury as well as of horticultural skill and good taste.....Eden is commonly regarded as being synonymous with the garden of the Lord and man's first earthly paradise. Genesis (11:8-10) tells us: "The Lord God planted a garden eastward in Eden..... and out of the ground made the Lord to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and of knowledge of good and evil."

It is doubtful that gardening in the mind of modern homeowners assumes the religious significance attributed to it by McKay's passage. Nevertheless gardening does in many ways provide a unique opportunity for modern man to conform to subconscious values. The work ethic demands that he spend at least a certain portion of his non-vocational time in physical activity. Golfing, bowling or model

^{7/} McKay, Alastair, "Farming and Gardening in the Bible," Rodale Press, Emmaus, Pennsylvania, 1950, pp. 40-41.

building do not adequately satisfy his needs. Home repairing, auto maintenance or housework more nearly fulfills the need but they all fall short of man's need to be in touch with the soil and with living things. This need is certainly not recognized by everyone, nor can it be measured, but it seems apparent that as Americans we are too few generations removed from the soil to be able to divorce ourselves from it completely.

While gardening is a unique leisure activity, its patterns of determination are probably much like those of other interests. Perhaps the most important difference between it and any other leisure activity is that it is a compulsory extra curricular activity among a large number of people.

Murdoch^{8/} names a number of social-psychological factors which give insight into the motives for gardening:

.....in addition to the room without walls concept, the outdoor spending pattern is influenced by other factors, many of which are related to the basic drives, fears and ambitions of our society.

Status

Gardening is essentially a luxury and long has been associated with the rich. Now that so many Americans have achieved a measure of affluence, it is not surprising that they show off their gardens as an indication of their new status.

Competition

Gardening is a good field of competition in which to outshine the neighbors. One's skill can be measured by achievement for all to see. The present gardening

^{8/} Murdoch, Jr., Lawrence C., "The Quarter Acre Living Room," Business Review, Federal Reserve Bank of Philadelphia, March, 1963, pp. 16-17.

ethic does not consider it improper to enlist mechanical and chemical help. Having professional help is frowned on, however. Another way to get one up on the guy next door is to memorize a number of Latin names and to use them knowingly in conversation across the back fence.

Self-expression

The houses in many post-war developments stand cheek-by-jowl, as indistinguishable as kernels on an ear of corn. The typical owner often resents regimentation, however. He wants to express his identity and say, "This is my property, color it different." Trees, shrubs, plants, and flowers, serve to set his house apart from the rest of the block.

Impatience

The popularity of instant this and instant that indicates that Americans do not like to wait long for results. It is not surprising, therefore, that garden spending is shifting away from seeds to more expensive small plants. Such a running start means flowers in June rather than in August.

The lust for newness

Dynamic obsolescence as the regular style change is called, is a marketing mainstay in automobiles, appliances, pleasure boats, furniture and clothes. Now it's big in the garden market too. Many plant and flower merchants make it a policy to develop a new "model" every year.

Frugality

The typical homeowner is convinced that a lush lawn and attractive plantings add substantially to the value of his property. Real estate men differ on this, pointing out that many sales are made in the winter. Nonetheless, gardeners continue to justify money spent on their lawns as a sound investment.....

The clean slate syndrome

Many Americans enjoy being wasteful. When something breaks down they discard it with a flourish and get a new one. Now they can wipe away their entire lawn when it displeases them and start over from scratch. A new preparation will kill all growth without poisoning the soil and preventing immediate reseeding. It makes a nice flamboyant gesture.

While gardening is widespread as a leisure time activity and is no doubt often indulged in because of an innate desire to be in touch with nature, it cannot be assumed that gardening is as universally enjoyed as it is practiced.

As Meyersohn and Jackson^{9/} have said: "Anyone who hates the outdoors would do well not to move to the suburbs; either that or he would have to do well enough to hire a gardener to keep the outdoors away from him."

As is true in model building, woodworking, or golfing, there are all levels of competency and involvement in gardening. It appears there is a direct correlation between socio-economic situation and both competence and involvement in gardening. To measure this correlation, Meyersohn and Jackson^{10/} studied homeowners in two Chicago suburbs selected because of their differences. One suburb (Fairlawn) was a post-war housing development planned by a single builder and inhabited by young adults with young children. Its median age was 26 and its residents were well educated, well-off middle class people. The median education was fifteen years of school and the median annual income over \$5000.

The other suburb (Le Chateau) until recently a community of its own, now incorporated into the suburban realm. The median age was 31

^{9/} Meyersohn, Rolfe and Jackson, Robin, "Gardening in Suburbia," cited in *The Suburban Community*, William M. Dobriner, G. P. Putnam's Sons, New York, 1958, p. 275.

^{10/} Meyersohn, Rolf and Jackson, Robin, op. cit., pp. 276-277.

and the residents are not as well educated nor as well off. The authors described their efforts to determine the incidence of gardening as follows:

Several ways were used to find out how committed to gardening our respondents were. One way was to ask how much time was spent each week in this activity. Since our field work was done in July, it was possible to ask the current number of hours worked. Slightly over half the respondents spent less than five hours per week on the garden.

Table 1. About how many hours a week do you spend working in the garden.

	LeChateau	Fairlawn
Less than five hours	47%	63%
Five to ten hours	34	26
More than ten hours	19	10
No answer	<u>0</u>	<u>1</u>
Total	100%	100%
N =	151	137

A somewhat subtler way of measuring commitment is to find out whether the leisure activity is approached as a challenge or a routine. Is it treated as a sport, a struggle, or a chore? Is it approached in a way that presumes a fairly high degree of skill?...craftsmanship in gardening exists along several lines: the flowers raised may in themselves be difficult to care for; attempts can be made to grow from seed or cuttings certain kinds of flowers that are ordinarily bought as bulbs or young plants, or completely new varieties may be created by cross pollinating plants. In measuring craftsmanship we found that a quarter of the gardeners could be considered skilled.

Table 2. Craftsmanship involved in raising flowers.

Garden Evaluated as Containing Predominantly Flowers that are	LeChateau	Fairlawn
Hard to raise	29%	22%
Easy to raise	71	78
Total	<u>100%</u>	<u>100%</u>
N =	151	137

Meyersohn and Jackson point out that participation in gardening is directly related to the nature of the community one lives in. In their study the residents of the newer more homogenous community were not as committed to gardening measured both in terms of the difficulty of their garden enterprises and their expectations for developing such projects in the future.

Murdoch^{11/} is more direct in his analysis that many gardeners actually despise the activity but will not admit it to those with whom they are in convert competition. In his words,

This is not surprising; in fact it is in keeping with the modern American character. What is surprising is that the relatively uncoordinated outdoor living industry has recognized and capitalized on this attitude. A neat tailoring of supply to meet a "quite contrary" demand is one reason outdoor living now commands a multibillion-dollar price tag.

Television, as indicated by several of the writers already quoted, competes with other activities for the leisure time of its

^{11/} Murdoch, Jr., Lawrence C., op. cit.

viewers. Having recognized that reality, this study will treat television as a vehicle for instruction in the education of adults using activity, outdoor work in the lawn and garden, as an illustration. The competitive aspect of television is emphasized by Polack^{12/} in his analysis of television and leisure:

TV is a typical pastime in leisure hours after household duties, school work and outdoor work. Full use of leisure hours not only in competition with other possibilities, but like book reading, leaves no chance of doing anything else. Besides, TV is striving after a monopoly of the use of free time, even at the expense of time destined for work or rest..... The great dangers of technical devices in general and of TV in particular are not only what they make of the outer world, but also what they do to the inner life of man. When, by a movement of the hand the TV screen begins to light up in a dark room, this same action can also switch off or darken something in the human mind. TV is limited to a ray of light from screen to eye.

For every prophet of doom as regards television, however, there are perhaps ten equally qualified critics who see in this relatively new medium the opportunity to lift the sights of millions of our citizens. Never before have so many had such intimate contact with the few outstanding intellects and artists of the world. Bogart^{13/} suggests that television can have a powerful effect upon our values:

In a world in which the average person finds himself with more and more leisure on his hands, the continuous flow of television entertainment represents to most people an innocuous way of passing the time. But television is not merely a diversion, it is an endless source of ideas and information and a powerful influence on values.....

^{12/} Polack, Fred L., "Television and Leisure," Journal of Communication, Volume II, Number 2, November 1952, p. 21.

^{13/} Bogart, Leo, op. cit., p. 5.

The increase of leisure, it should be noted, has not set limits for the growth of the media. Radio, and to the same extent television, can claim more than free time they get into the hours of work. Radio follows the housewife as she does her chores and brightens the hours of the worker or shop clerk at his job. The use of the mass media cannot be explained merely as an effect of the growth of leisure time. There has been a reciprocal effect. The mass media have themselves spread popular awareness of what constitutes the good life. By making the good life familiar, they have made it possible (as well as desirable) for the great masses of the people. They have offered glimpses of a life apart from work, a life more genteel or interesting than most of the audience knows first hand, but one into which it can readily project its imagination. To varying degrees, people model themselves after the idealized characters who figure in TV or film dramas, in magazine short stories, and in cigarette ads. The mass media has thus supported a system of values which encourage striving for greater achievement which is expressed in more wealth and more leisure.

People are often uncertain as to why they consider television a constructive influence in their lives. One study indicated:^{14/}

The TV owners tended to state the main advantages of television in the form of generalities. Thirty-three percent gave entertainment as the reason, 25 percent cited education, 16 percent said TV keeps the family at home, and 4 percent said it keeps children off the streets.

It seems certain that television has contributed to a growing desire among many citizens to remain at home more. Elmo Roper in a December 4, 1949 broadcast said:

The new world of video is primarily a home-loving life. Television owners go out in the evening less than non-owners do.....fewer of the TV owners work around their house or in the garden, fewer go to the movies, or go dancing, play bingo, or drink beer at the corner bar. And, fewer told us they just rest and go to bed in the evening.

^{14/} Fine, Bernard J. and Maccoley, Nathan, "Television and Family Life," Boston, Boston University School of Public Relations and Communications, 1952 (mimeo).

Many sophisticated studies show that viewers differ dramatically in characteristics from non-viewers and that television can bring about profound psychological changes.^{15/}

Frequent viewers of KVHT-TV do differ to a statistically significant degree from non-viewers with respect to the frequency of reading books (non-viewers read significantly more), attendance at lectures, concerts or plays (viewers attend significantly more often), presence or absence of a hobby (viewers significantly more likely to have one), membership in civic organizations (viewers significantly more likely to belong); or membership in social organizations (viewers significantly more likely to belong).

Much has been said about the kind of people who buy television sets and about those who watch television programs. Oddly enough, in the early days of the medium it was not the wealthy who purchased receivers. More recent studies have indicated that those with higher incomes and higher education are more likely to be television viewers. This would seem to support the notion that television in general does broaden people's interests, promotes reading, and provides opportunity for intimate contact with the world of cultural affairs.

Shramm^{16/} makes the distinction between educational television and current commercial television in drawing correlation between viewing and social class:

Most of the studies find that more highly educated persons are more likely to be in the audience of

^{15/} Evans, Richard I., An analysis of some demographic and psychological characteristics of an educational television station audience in "The Audience for Educational Television," Ryland W. Cray, Editor, Research Report, Educational Radio and Television Center, 2320 Washtinaw Avenue, Ann Arbor, Michigan, October 1957, pp. 44-45.

^{16/} Shramm, Wilbur, "The Impact of Educational Television," University of Illinois Press, 1960, pp. 26-28.

educational television. The greatest difference seems to be between persons who have had some college and persons who have not--an individual's social class membership apparently has something to do with the television he watches because a person internalizes the values and norms of the group to which he belongs--now it happens that a great deal of commercial television runs counter to one of the most common middle-class norms in America--the idea that a person should be active, striving, achieving, trying to better himself, participating in social interaction and public affairs,in sharp contrast most commercial television encourages chiefly passivity and minimum effort rather than activity, a minimum of social interaction, a concern with fantasy rather than with real life and living in the present rather than concerning oneself either with self improvement or problems of tomorrow.

Most of the studies have found positive correlations between education, occupation, income, and ETV viewing and there is little doubt that these could be restated in terms of social class. The weight of evidence, then, is in favor of the idea that educational television is likely to be most used and most highly valued in the higher social status groups where commercial television is likely to be least valued and least used.

Bogart^{17/} in contrast to Shramm, makes no distinction between commercial and educational television in correlating viewing habits with social class:

From the number of studies already cited, it appears that persons of above average income and education seemed to have felt the fewest effects from television. They are best able to fit it into their lives without drastically reshaping other activities.

A more comprehensive analysis of characteristics of viewers and non-viewers was made in a survey by the National Broadcasting Company reported by Bogart:

The characteristic difference, in family size and city size location, were also found when television and

^{17/} Bogart, Leo, op. cit., p. 108.

non-television homes were compared by the National Broadcasting Company^{18/} in a survey of women's day-time television viewing habits--this study also confirmed that television is more often found in homes where there are children under 18, where family income is higher, where the head of the house has an occupation of higher status, and where the housewife herself is younger and better educated.

A comparison of socio-economic characteristics of women in TV and non-TV homes as reported by Bogart is contained in Table 3.

Table 3. A comparison of women in TV and non-TV homes.

Percent of Homes in Each Category	TV Homes	Non-TV Homes
Children under 18	60%	48%
Under \$3000 income	20	53
Professional, semi-professional, managerial occupation (head of house)	23	14
Grade school education or less (housewife)	24	39
Owns automobile	77	63
Owns home	58	51
Live in single family dwelling	63	72
Metropolitan area	77	37
55 and older (housewife)	18	28
Married (housewife)	80	71
Employed outside the home	35	28
White	93	84

The audience impact phases of this study are based on a series of educational programs broadcast on educational television station. For this reason it is interesting to reflect on the social and

^{18/} Simmons, Willard R. and Associates, 1954 (NBC) as reported in Bogart, op. cit., pp. 17-18.

economic characteristics of viewers of these kinds of programs.

Linch^{19/} for example, analyzed the audience for the "University of Michigan Hour" in the Detroit metropolitan area.

Several indexes of social composition were related to the viewing of the program (The University of Michigan Television Hour) and it was noted that:

1. Relatively large proportions of television set owners in all age groups up to 60 years view.
2. Considerable percentages of those with high school and grade school background are members of the program's audience, even though college educated were found to be the most likely to view.
3. Viewing was relatively high at all income levels.
4. Those who work as "professional managers," or proprietors and "craftsmen, foremen and kindred workers" are most likely to view the program, but in no occupational group does the level of viewing go below 40 percent.

The size of the audience and the frequency of viewing were measured from the response of persons interviewed in the sample. It was found that one-half of all the television set owners in the Detroit area viewed the Television Hour. Two-thirds of these viewers reported seeing the program within the last six months, and one-fourth said that they view one to four times a month.....

The following general hypothesis were designed to test the effectiveness of a series of educational television programs based on gardening and ornamental horticulture produced at Michigan State

^{19/} Linch, James E., A study of the size and composition of the viewing audience of an educational television program in the Detroit Metropolitan Area, Ph.D. dissertation, University of Michigan, 1954, mimeographed abstract, p. 2.

University in 1960 and 1961. This series entitled "Plants are for People" was distributed in Michigan, Illinois, New York, and Ohio. The evaluation resulting from this study was carried out in Ohio.

1. Resources for producing a successful series of educational television programs based on gardening and ornamental horticulture can be mobilized on a Land Grant University campus.

Resources are defined as monies in addition to subject matter specialists, technical personnel, recording facilities and equipment, production personnel and performing talent.

Successful is defined as meeting the overall objectives of the educational agency initiating the project, in this case, The Cooperative Extension Service of Michigan State University.

Mobilized is defined as the process obtaining approval for and gaining commitment of resources to the production of the series of programs.

2. A series of educational television programs based on gardening and ornamental horticulture can be accepted by commercial television stations for broadcast.

Commercial television stations are defined to include those on which advertising is accepted for profit in contrast to noncommercial stations normally financed by educational and public service organizations and institutions.

This hypothesis is pertinent in that educational agencies are often unable to gain access to desirable time periods on commercial stations for broadcasting educational messages. This recognizes the responsibility of the educational agency or institution to design

programs which not only meet the needs of the viewers but to a substantial degree meet the objectives of the producer and the broadcaster.

3. A series of educational television programs based on gardening and ornamental horticulture can be broadcast at desirable time periods on commercial television stations.

Desirable time periods is defined as those times of day when the audience for whom the subject matter is intended is most likely to be viewing television. In this series of programs the intended audience was adults owning or renting homes and, therefore, interested in maintaining the appearance of the house and grounds.

4. Subject matter relating to gardening and ornamental horticulture can be successfully transmitted visually by television.

Successfully transmitted is defined to include the ability of the producer to assemble the properties essential to effective exposition of the subject matter including film, graphic art, tools, or plants. It likewise includes the ability of the director to organize the talents of cast and crew to utilize these properties effectively to implement the exposition. It does not include the ability of the electronic system to reproduce and transmit pictures of the presentation.

5. Knowledge of specific recommended practices in gardening and ornamental horticulture can be successfully communicated through the use of open circuit television.

Knowledge is defined as acquaintance with or understanding of practices, definitions or theory relating to gardening and ornamental horticulture.

Successfully communicated infers that this acquaintance with or understanding of gardening and ornamental horticulture did, in fact, occur within the intended audience for the series under study.

Open circuit television includes those programs available on channels 2 through 83 and, therefore, available to any viewer who can tune those channels in on his receiver.

6. Increased knowledge of specific recommended practices in gardening and ornamental horticulture resulting from a series of open circuit television programs will be influenced by the socio-economic characteristics and the communications habits of the viewers.

Socio-economic characteristics are defined as relating to or involving a combination of social and economic factors.

Communications habits refers to the means utilized by the viewers of the test series to obtain information, particularly that information which relates to gardening and ornamental horticulture.

This general hypothesis is particularly pertinent because the test series represents an educational effort making use of a commercial medium. It is assumed that a substantial proportion of the audience for commercial television programs look to this medium for entertainment not education. Studies indicate that income and social status influence viewing habits, particularly those of adults. Other studies show that media preference varies from one kind of subject matter to another. Studies cited previously in this chapter suggest that there are certain similarities in the socio-economic characteristics of people who view educational television programs and those who spend time and money maintaining and improving the appearance of

their homes and grounds. These assumptions along with evidence from previous studies suggest a number of specific hypotheses which should yield the information necessary to test not only this general hypothesis but also to a considerable extent the previous five general hypotheses.

Specific Hypotheses

Test scores on a test of knowledge of gardening and ornamental horticulture will be higher:

1. Among those viewers who have lived at the same address for more than five years.
2. Among those viewers living in single family dwellings, in contrast to those living in owned duplex, rented single family dwelling or rented duplex or apartment.
3. Among those viewers with college education in contrast to those with no college education.
4. Among those viewers whose annual income totals more than \$9000 in contrast to those whose annual income totals less than \$9000.
5. Among those viewers in households where the man does most of the lawn and garden work, in contrast to those households where the women, children, or hired help do most of the lawn and garden work.
6. Among those viewers in households where more than \$50 annually is spent on the lawn and grounds, in contrast to those where less than \$50 is spent.

7. Among those viewers who consider care of the lawn and grounds a hobby, in contrast to those who consider it a means of maintaining the value of the house, to supplement the food supply, or as a social obligation to keep the property in presentable condition.
8. Among those viewers who spend time in at least three of the following lawn and garden activities, in contrast to those who spend time with less than three:

lawn care	fruit growing
vegetable growing	care of flowers
care of shrubs	
9. Among those viewers who specify gardening and reading about gardening as first, second, or third in terms of leisure time spent as selected from the following list, in contrast to those who specify gardening and reading about gardening as lower than third choice:

Reading (non gardening material)
Gardening and reading about gardening
Participation in sports
Listening to, watching, or attending sports events
Listening to, watching or attending music, art or literature programs
Hobbies, other than gardening
10. Among those viewers who belong to garden clubs, in contrast to those who do not.
11. Among those viewers who receive at least three of the following magazines in contrast to those who receive less than three:

Better Homes and Gardens	House Beautiful
American Home	Ohio Farmer
House and Garden	

12. Among those viewers who have made use of information in bulletins, on radio and television or publications of The Cooperative Extension Service, in contrast to those who have not.
13. Among those viewers who specify radio or television as first, second, or third as a source of information on lawn care and gardening, in contrast to those who specify radio and television as being lower than third.

SURVEY OF THE LITERATURE

There are in existence a vast number of evaluative studies of the effectiveness of various methods of informal or "extension" teaching. This list becomes greatly reduced when limited to those studies dealing with the effectiveness of informal instruction by means of mass media. When further restricted to television and to the subject matter of gardening, lawn care and ornamental horticulture the literature is indeed characterized by a paucity of information.

Reference will be made here to certain studies which bear on the project under study as they impinge on the study from the areas of communications theory, education through the mass media, and the area of gardening and ornamental horticulture.

The teaching of practical "how to do it" information is, of course, a hallmark of the Cooperative Extension Service which has for 50 years subscribed to the philosophy of starting with people "where they are" in terms of interest, ability and motivation. This philosophy is apparent in adult educational programs of a general nature, although the range of subject matter offered in adult educational programs through the public school systems is greater in terms of a scale running from practical to liberal education.

Radio was, of course, the first electronic medium of mass communication and one which has been widely used to dispense all manner of educational and cultural information. While radio and television differ markedly in many ways they do offer many of the same

opportunities and problems in terms of content analysis, audience analysis and audience impact.

Only one study relating specifically to the use of radio is reported here to suggest the effectiveness of radio to transmit practical "how-to-do-it" information and to contrast several combinations of methods using radio in each combination.

The Cooperative Extension Service of Wisconsin^{20/} compared three methods of presenting information on care and repair of hats, using radio as a means of teaching by mass media. The other two methods were direct teaching by project leaders in home demonstration club meetings, and in a leaflet prepared by a specialist in clothing. Among the findings of this study were these:

.....The radio-leaflet homemakers excelled in the number who tried some of the ideas, the number of ideas tried, the average number of hats worked on for themselves and others, and the average number of families outside their own which they helped.

A total of 67 percent of the radio-leaflet homemakers tried some of the ideas on hats for their own families or others as compared to 61 percent of the leader-leaflet-radio group..... The women in the radio-leaflet group worked on an average of 1.2 hats for their own families; those in the other two groups worked on less than one hat each.....the average number of hat ideas tried per homemaker for her own family or others is 3.02 for the leader-leaflet-radio group, and 1.97 for the leader-leaflet group..... The radio-leaflet homemakers had had the highest percentage trying 7 of the 11 specific practices; the leader-leaflet-radio, 3 of the 11, and the leader-leaflet, 1 of the 11.

^{20/} Crile, Lucinda, Sundquist, Alice, and Meloche, Gladys, "Relative Effectiveness of Three Combinations of Extension Methods in Wisconsin," U. S. Department of Agriculture, Extension Service Circular 446, October 1947.

Much of the literature relating to the educational use of television is based on closed circuit installations. This is understandable because of the opportunity to set up laboratory or clinical situations to control the many variables which can affect any regularly scheduled open circuit broadcast. Rather than to attempt a comprehensive review of the literature on effectiveness of closed circuit television, reference here will be made only to a summary statement resulting from the most ambitious study of closed circuit teaching yet attempted. This was based at Pennsylvania State University and financed by the Ford Foundation Fund^{21/} for the advancement of education. The summary statement is as follows:

.....The effectiveness of television as a medium for both secondary school and college teaching has been tested extensively. This represents closed circuit transmission which in turn offers an opportunity to set up controlled laboratory situations conducive to scientific research.

In 1954, the Fund for the Advancement of Education made a grant to Pennsylvania State University for a systematic inquiry into such questions as, how well could teachers really teach before television cameras, how well can students learn in front of receiving sets? Would students and faculty members accept the new medium? And what would televised instruction cost in comparison with the cost of conventional instruction? This was the beginning of the most extensive program in the use and evaluation of televised instruction in American higher education. By the spring of 1958, some 3700 of Penn State's 14,000 students were registered for one or more of the 13 courses taught over closed circuit TV.

^{21/} Teaching by Television, a report from the Ford Foundation and the Fund for the Advancement of Education, March 1959, p. 26.

The comparative effectiveness of televised instruction is seen in this summary of results up to 1958.

1. In 29 out of 32 controlled comparisons in seven different courses, there were no significant differences in achievement between students taught via closed circuit television and those taught in the conventional manner.
2. In three different courses there were no significant differences between scores on course related attitude tests taken by students taught via TV and those taught by the same teachers in the conventional way.
3. No significant differences in students' achievements were found when proctors of varying status were used to supervise classroom groups of students in televised classes. Proctors included peers, seniors, graduate students, and faculty members.
4. No significant differences in student achievement were found in comparison of classes of various sizes taught via television. Size of classes ranged from 11 to 119 students.
5. Several methods of providing for teacher-student interactions were studied in different courses. These included the use of questions and answers over an intercommunication system between the TV classrooms and originating room, and the rotation of students through the TV originating room. Neither of these methods produced measurable increments in learning, but the students strongly favored the use of the intercommunication system.

Television as a teaching tool, has many advantages but it is by no means a magical device. It is, in every sense a tool and when properly used can multiply the impact of superior teachers and accomplish intimate contact between one personality and a vast number of learners. To those who are less skilled in teaching but nevertheless have important knowledge to impart, television forces planning

which results in more effective presentations. Effective television teaching demands visualization of the subject matter whether the point to be made is one of theory or of practice.

The North Central Association of Colleges and Secondary Schools^{22/} has called for additional use of television and gives the principles to be observed if it is to be effective:

If television can bring about the teaching of more pupils by better teachers and accomplish this as effectively as other methods or more effectively and at a cost within reasonable limits, it is incumbent upon educators to examine this possibility with great care. If television can alleviate school population pressures, make our best teachers available to more learners, save dollars in conventional school plant costs, make the process of learning more effective and satisfying, and provide a wider range of experiences than heretofore possible--and there is good reason to believe that wisely used it can do all these things--then certainly all educators should move as rapidly as possible in their own planning and through their local boards of control and state legislatures to secure the benefits of the medium.

The following principles may now be safely accepted as bases for the planning and use of television education:

1. Television is an important instrument for teaching and learning at all levels: elementary, secondary, higher, and adult.
2. Television is a new medium of communication, not a new method of teaching and learning. It permits many variations in the teaching-and-learning process, but its effective use is based upon the same fundamental psychological principles which apply to all successful processes of learning. The attitudes of the learner and the results of teaching are as certain to be affected by the quality of instruction and its adaptation to the needs

^{22/} The Uses of Television in Education, North Central Association of Colleges and Secondary Schools, March 1961, pp. 9-11.

and motivations of the learner is televised as in conventional instruction.

3. Students can learn as well where television is used by the teacher as in the conventional classroom situation; frequently, they can learn better.
4. The proper use of television provides new incentives for students to assume more responsibility for learning.
5. Television is not a self-contained educational entity, but an instrument which is significant only in the particular educational context in which it is employed.
6. Optimum realization of television's potential can result only from integration of the teaching arts, the graphic arts, and the electronics communication process.
7. The use of television can improve the total program of instruction.
8. Effective television teaching demands more preparation and the assistance of more specialized personnel than does conventional instruction.
9. The successful use of television imposes responsibility for and highlights the necessity of cooperation among administrators, teachers, and other specialized personnel.
10. Television is such a versatile, dynamic, and new medium that its educational use not only encourages but demands a continuous appraisal of the ways in which it is or may be utilized.
11. Television provides new and better ways of relating the activities of pupils, teachers, and parents and making the community more aware of educational processes and needs.
12. Appreciation of the values of television as an educational medium increases in proportion to experience with its proper uses.

Watson and Berninger^{23/} became interested early in testing the effectiveness of closed circuit television in teaching subjects relating to horticulture. They used eight classes of university students enrolled in a basic English class to evaluate four recorded programs.

The results of the tests showed that the beginning levels of knowledge on various horticultural topics was extremely low, while the beginning attitude levels were favorable. Two minute television programs were effective in aiding the learning process. A significantly high percentage of information was immediately absorbed over a period of three weeks, the retention of this information was excellent with no occurrence of significant decreases in knowledge.

An audience exposed to six minutes of information produced a significant positive increase in attitude. When retested three weeks later, no significant changes in attitude were found.

The learning and retention of information as indicated in this study was heightened by the reinforcement of information through a brief, but strong summary.

A high percentage of students viewing the two-minute programs endorsed the use of similar television commercials in spite of the fact that the recordings were not completely professional in character.

The Cooperative Extension Service was quick to make use of the new medium of television when it became available after World War II. In the first few years this use was confined to the traditional demonstrational lessons in agriculture and home economics. Lionberger

^{23/} Watson, Donald P. and Beringer, Louis M., "Impact of Horticultural Information on Televiewers," Quarterly Bulletin, Michigan Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, Vol. 37, No. 2, November 1954, pp. 187-192.

conducted some of the early research on this kind of programming. He sets forth the benefits that viewers of farm and home shows might be expected to gain:^{24/}

- 1... He may actually recall nothing but retain subconscious impressions nevertheless.
2. He may recall one or more program subjects seen.
3. He may be motivated to get more information.
4. He may actually try some of the things he saw demonstrated.

To test this scale of television impact, Lionberger asked a sample of rural household heads and wives whether they remembered any of the broad subject matter areas presented on shows during a previous six-month period. Specifically, they were asked about 139 television subjects broadcast during the period in question:

.....The average number of specific subjects recalled by the heads was 11.1 while the wives recalled practically the same number--11.2. The results showed that talking to others was the most frequently reported information seeking activity and that the household heads were generally more active information seekers than their wives (26 percent as compared to 17 percent). Eight percent of heads and 11 percent of wives reported writing for bulletins and 10 percent of heads and 6 percent of wives reported going to the county agent.....

In the final analysis, 36 percent of the household heads and 37 percent of the wives either tried something they saw on the farm and home shows or took some action to get additional information about something they had seen. (Approximately 10 percent more non-farm wives did something as a result of the shows than did farm wives.)

^{24/} Lionberger, Herbert F., "Television Viewing in Rural Boone County," Bulletin 702, Agricultural Experiment Station, University of Missouri, April 1958, p. 8.

Because of increasing demand by urban residents for information relating to gardening, landscaping and ornamental horticulture coupled with the relatively small staff of specialists assigned to this area, The Cooperative Extension Service in many states has attempted to use television and other mass media to reach this expanding audience. Evaluation of these efforts, in general tell a favorable story.

A 1956 study by Earle S. Carpenter^{25/} Extension Communications Specialist, was based on "Gardeners Almanac" a series of television programs broadcast weekly from April through October on Channel 2, Cambridge, Massachusetts. Among the results were these:

1. The response to "Gardeners Almanac" definitely indicated an interest in a program presented over an educational station which was in evening competition with several network presentations.
2. The majority of the viewers had lawns (90 percent) and flower gardens (86 percent), while 38 percent had vegetable gardens.
3. The time spent by Extension personnel in preparation for, and for presentation of, and follow up of each telecast was approximately the full time of one person.
4. Many of our Extension programs are adaptable to the medium of television provided the right personnel is available to adequately prepare and present the material. In this way, our programs would be received by many homes in the commonwealth.

J. C. Garrett^{26/} Extension Horticulturalist at Oklahoma State University, undertook a study in 1960 involving a nationwide sample

^{25/} Carpenter, Earle S., "Gardener's Almanac-Television Series for Home Gardeners," Miscellaneous Bulletin, University of Massachusetts, College of Agriculture, 1957.

^{26/} Garrett, J. C., "Television as a Medium for Disseminating Landscape and Related Information," mimeograph publication, Oklahoma State University, Agricultural Extension Service, 1960.

of (a) those interested in obtaining ornamental horticultural information, and (b) those chiefly concerned with dissemination of ornamental horticultural information. Following are some of his conclusions:

1. Television, with wise use, is a positive potential for mass media dissemination of educational information related to ornamental horticulture.
2. Extensive development and understanding of the medium is needed for the most effective utilization for educational purposes.
3. Television, utilized effectively, probably exceeds all other communicative means for reaching the masses of people not generally contacted or influenced by present day methods.
4. Observance of the following factors would be expected to help realize better results from television application in educational programming:
 - a. Detailed pre-program planning and preparation.
 - b. Employment of the most applicable presentation techniques for the particular subject with due consideration for time, economy, convenience and effectiveness.
 - c. Program participants who are not only thoroughly familiar with the subject but adroitly capable of discussing and demonstrating the topics in an understandable, interesting manner.
 - d. Time of programming should be considered from the standpoint of convenience for the majority of viewers and freedom from other distracting factors.
 - e. The program length should be sufficient for development of specific ideas and demonstrations of supporting methods.
 - f. Independent programs arranged in a continuous series with advance notice and publicity as to day and date, time, and program outline are more conducive to better results than occasional, sporadic programs.

- g. Selected timely subjects with mass appeal.
 - h. Supplementary printed materials, wisely selected and distributed, are considered almost essential for success.
5. Some negative assertions relative to the educational use of television were:
- a. Too many interruptions by commercials (commercial stations).
 - b. Deprived of benefits of discussion and direct questions.
 - c. Difficulty of securing most desirable programming times (commercial stations).
 - d. Most programs of an educational nature have been too short.
 - e. Extensive television usage is extremely time consuming for the professional worker with a multitude of other equally important duties to perform.

Television, wisely utilized in the educational program, has almost unlimited possibilities for the dissemination of information on a subject with such universal appeal as landscaping and ornamental horticulture. This significant electronic teaching device is not deemed a substitute for other oral and written communicative methods, but is a dynamic supplement in the area of communications.

A 1959 study by Smith and Smith^{27/} sought to determine the media preferences for three specific kinds of subject matter: weather, homemaking and market reports. The study concluded that television was the most used source in the three sample counties for weather information; newspapers and farm magazines were most used for

^{27/} Smith, Robert R. and Smith, Arthur H., "Sources Most Used for Selected Types of Information by Rural Residents of 7 Area Ohio Counties," March 1959, mimeograph publication, Ohio Agricultural Experiment Station.

information about homemaking; and farm magazines were most used for information about gardening (considered in this study to be homemaking information). Radio was found to be the most used medium for market information.

While television was not considered the most favored source of gardening information, it nevertheless ranked above "meetings and friends" as a first choice in two of the three test counties. Radio was selected as the third best source of such information following "farm magazines and Agricultural Extension."

Reference is made here to a study by Merrill^{28/} of two programs of a thirteen program series entitled "County Agent." This series is pertinent from the point because it was designed for use on open circuit commercial television to accomplish agricultural education. According to Merrill:

The purpose of this project was to answer the following questions under laboratory conditions:

1. Did the two sample programs result in desired learning?
2. Did they result in desired attitude change?
3. What production suggestions for future series can be gained from this research?
4. Can improved methods of educational television program evaluation be developed?

Analyses of variance of cloze procedure data for each program indicated that the subjects learned and that for both the programs the difference in scores were significant far beyond the .01 level of significance.

^{28/} Merrill, Irving R., "Impact of The County Agent," TV Film Series, Special Bulletin, Michigan Agricultural Television Station, Michigan State University, 1957.

Deutschman and McNelly^{29/} report a successful educational open circuit television project with boys and girls of 4-H Club age. This was an investigation of the Impact of the 4-H TV Electrical Club series, a pioneering thirteen program series introduced in 1958 to interest urban boys and girls in electrical projects.

Coincidental telephone surveying, field interviews and class experiments with 6th grade classes in Jackson, Michigan were used to collect data.

It was found that two out of every three sets in use on Saturday morning during the test in the Lansing and Jackson area were tuned to this program. Boys and girls who saw one or more of the programs and wrote in to join the club scored significantly higher on a learning test than did viewing children who did not write in. The non-responding viewers scored significantly higher than non-responding non-viewers. In the classroom, film viewers scored far higher on the learning test than non-viewers of the film. Previous television exposure appeared to be a minor factor as compared with film exposure in the classroom.

The results of this study in terms of the more effective performance by those who participate, in this case by writing in, is supported by other studies. It appears that television teaching, particularly that done on open circuit commercial television channels benefits from the use of supplementary materials.

^{29/} Deutschman, Paul J. and McNelly, John T., "Impact of a 4-H Television Series," Communications Research Center, College of Communication Arts, Michigan State University, East Lansing, Michigan.

Goss^{30/} in a study for the Vermont Agricultural Extension Service, in cooperation with the National Project in Agricultural Communications, concluded, "a well organized educational television program on a commercial channel can put across facts, change opinions, and stimulate people to act."

Although teaching and stimulation can be accomplished through television, there's no single way to put a message across. Important facts must be presented more than once with any mass medium and should be used in a combination of suitable media. People are unlikely to adopt anything on first exposure. Varied habits and preferences make different approaches wise. At present, television offers glamour and a high degree of credibility. Indications are that television interests the younger and better educated. These are people generally thought of as leaders in idea adoption. Indirect values are obtained from all mass media. When those who adopt an idea succeed, their neighbors will try it. Each time an idea is voiced, more people will hear it. Every time a person hears a good idea he comes to consider more how he might use it.

Any study which proposes to measure the effectiveness of a medium of communication must necessarily take into account the communications behavior of people. Sociological research in recent years has been able to classify this behavior through a detailed analysis of large numbers of people exposed to information on new and improved practices. The diffusion process refers to the spread of new ideas from the original source to the ultimate user. In the case of agriculture, it is the process by which new farm practices or ideas are communicated from sources of origin, usually scientists, to farmers.

^{30/} Goss, Glen W., "Learning from Educational Television," Miscellaneous Publications 8, Agricultural Experiment Station, University of Vermont, April 1959.

The adoption process is a mental process through which an individual passes from first hearing about a new idea to its final adoption. It may be divided into stages as follows: awareness, interest-information; evaluation-application-decision; trial; and adoption.

Table 4, as suggested by Bohlen, Coughenour, Lionberger, Moe and Rogers,^{31/} serves to illustrate the functional role of mass media in obtaining changes in practices.

Kreitlow^{32/} compared the effectiveness of the lecture, bulletins, film and television in presenting research findings. In two comparisons between television and a bulletin, one with an immediate test of knowledge gained and one with a delayed test, the bulletin was superior at .01 percent level in both instances. One of the most important new explorations in this investigation was the use of the immediate and delayed response of the viewer of a television program and the effectiveness of using a local professional leader (County Home Agent) in working with a randomly selected group and obtaining a highly respectable (80 percent) response. Using this method and obtaining this kind of a response opens the door for a great deal of needed research in the field of communication by television. The use of film or television is prompted by the need to reach a great many

^{31/} Bohlen, Joe M; Coughenour, C. Milton; Lionberger, Herbert F.; Moe, Edward O.; and Rogers, Everett M., "Adopters of New Farm Ideas," North Central Regional Publication No. 13, Agricultural Extension Service, October 1961, p. 7.

^{32/} Kreitlow, Burton W., A comparison of the effectiveness of the lecture, bulletin, film, and television in presenting "Research Findings," Mimeograph Publication, University of Wisconsin, 1961.

Table 4. Rank and order of information sources by stage in the adoption process.

Awareness	Interest	Evaluation	Trial	Adoption
Learns About a New Practice	Gets More Information About It	Tries it Out Mentally	Uses or Tries a Little	Accepts it for Full Scale and Continued Use
Mass media	Mass media	Friends and neighbors	Friends and neighbors	Friends and neighbors
Friends and neighbors, mostly other farmers	Friends and neighbors	Agricultural agencies	Agricultural agencies	Agricultural agencies
Agricultural agencies, Extension, Vo-Ag., etc.	Agricultural agencies	Dealers and salesmen	Dealers and salesmen	Mass media
Dealers and salesmen	Dealers and salesmen	Mass media	Mass media	Dealers and salesmen

more people than can be reached by the lecture given by the researcher himself, and even though this investigation shows the lecture with significantly higher scores in randomly selected groups, this difference, though significant, may not be important when the total number of people reached is taken into consideration.

Depending on one's own point of view, it would be possible to make a strong case for television as the ultimate answer to communicating useful information to people. It is also possible to support a point of view that television's best contribution is made in the field of entertainment, not education. The most enthusiastic advocates of television sometimes ignore the cumulative effect of messages delivered through various channels. It is likely that this relatively new medium resembles other media in that it is most effective when supplemented by other methods.

Diffusion studies have been helpful in shedding light on the role of television among the other media. These studies serve to emphasize the importance of combining effective communications methods and of obtaining prior knowledge of the characteristics of the audience as they relate to stages in the adoption process.

A CASE DESCRIPTION OF THE STUDY SERIES

Television, as an educational medium has been available only since the end of World War II. Any program or series of programs produced for educational purposes can therefore, be considered appropriate for experimental evaluation. The series of educational television programs which form the basis for this study was designed and produced to test the value of this relatively new medium for adult education.

"Plants are for People" was first produced by the Cooperative Extension Service of Michigan State University in the spring of 1960. It was revised during the spring of 1961. The uniqueness of this series both from the point of view of its production and use made it a prime target for social science research in the field of adult education.

The uniqueness of this project stems from the fact that the resources of a major university were teamed with the resources of a trade association in the field and the resources of the mass media communications industry to accomplish a project in adult education. Within the university, the Cooperative Extension Service provided the leadership in terms of educational goals and objectives. The Department of Horticulture, and in particular the ornamental horticulture section interpreted the educational need for the subject matter, gave form to its exposition and provided the body of knowledge to support the project.

The production and recording section of the University's Television Development Department provided the services necessary to package the educational information in a form which was attractive and acceptable to the commercial communication industry.

In addition to the University, The Michigan Association of Nurserymen provided financial resources and six commercial broadcasting concerns provided facilities by which the programs were made available to consumers.

The project while not experimental in terms of contemporary social studies, nevertheless provided the basis for experimentation in production, distribution, promotion and evaluation.

The Cooperative Extension Service of Michigan State University since 1953, produced educational television programs both for live broadcast and for subsequent broadcast by means of kinescope and video tape recording. While these adult education programs were chiefly intended for rural audiences there were numerous programs produced and broadcast for the benefit of urban audiences. In particular, a series entitled "Gardening Today" consisting of weekly 15-minute recorded programs was intended for an urban and suburban audience as well as a rural audience. In 1955 a rather ambitious series of kinescoped programs was produced by the Cooperative Extension Service in cooperation with the Department of Agricultural Economics based on discussions of public policy. Arrangements were made whereby local discussion groups of the Michigan Farm Bureau Federation and the Michigan Grange organized their meetings at times when these programs could serve as the basis for their discussion. A detailed analysis of the use of this

program by local discussion groups is available from an unpublished doctoral dissertation by Charles E. King.^{33/} During 1956 and 1957, The Cooperative Extension Service produced a series of 13 half-hour films primarily for use in television but available in color making them satisfactory for non-television viewing. The series was intended to interpret agriculture to the general population with the thought that a more informed citizenry would better appreciate the contributions of agricultural education and research and, therefore, be more amenable to legislative appropriations. The educational impact of this series is reported by Merrill^{34/} in a study financed by the Michigan Agricultural Experiment Station.

Each of the efforts in educational television described here appeared to be successful in terms of the accomplishment of the educational objectives ascribed to them. Each of the efforts provided experience to both the subject matter specialists of the Cooperative Extension Service and to the communications specialists both in the Extension Service and in the Department of Television Development.

Because of the heavy demand for both time and financial resources created by television participation, one major factor emerged as a deterrent to continued use of this new tool for adult education. That

^{33/} King, Charles E., "A Case Study of the Evaluation and Use of Special Television Programs as an Instructional Aid in Vocational Agriculture," an unpublished doctoral dissertation, Michigan State University, 1955.

^{34/} Merrill, Irving R., "Impact of the County Agent TV Film Series," Special bulletin, Michigan Agricultural Experiment Station, Michigan State University, 1957.

factor was the reluctance of many faculty members to participate in programs which could not be made available to a substantial portion of the people of the state.

The project upon which this study is based provided a partial solution to this deterrent factor. By the spring of 1960 video tape equipment had been installed by the Department of Television Development and a policy established of cooperating with any other university department interested in reaching a statewide audience on a timely basis. It was at this time that representatives of the Cooperative Extension Service and subject matter specialists from the Department of Horticulture met with representatives of the Department of Television Development to explore the possibilities of producing a series of programs based on gardening and ornamental horticulture to be recorded on video tape and made available through commercial television outlets to the people of Michigan. The proposed schedule probably represented the nearest approach to a "live" broadcast, yet accomplished in the state by an educational institution. It was agreed that "live" television quality could be obtained through the use of video tape and that this desirable effect would be enhanced by constructing an outdoor studio adjacent to existing studios where the recommended garden practices would be demonstrated in a realistic setting, and at a time when the homeowner would be expected to undertake the same operations.

Subsequent negotiation with the Michigan Association of Nurserymen revealed a willingness to assume the costs of the video tape itself.

The elements of cost are summarized as follows:

Personnel

Producer
Associate producer (1/3 time)
Assistant producer
Secretary

Total cost \$5400

Recording Services

Video tape
Recording costs
Directing staff
Studio costs

Total cost \$4965

Plant Materials and Properties

Plants
Garden equipment and supplies
Graphic arts
Film and slides
Outdoor studio construction

Total cost \$4355

Distribution

Total cost \$ 25

Promotion

Total cost of series \$14,995

This cost was shared by the participating agencies as follows:

Cooperative Extension Service	\$1,675.00
Department of Horticulture	5,868.00
Michigan Association of Nurserymen	3,000.00
Department of Television Development	1,300.00
Donated services, plant materials, garden supplies and equipment	<u>3,152.00</u>
Total cost	\$14,995.00

Inventory value of graphic arts, outdoor studio, plant material, garden equipment and supplies and video tape was estimated to be \$3,561.00.

Program directors of commercial television stations are constantly faced with problems of determining the best use of their air time in view, on the one hand of maximizing profit and, on the other hand, of operating in the "public interest, convenience, and necessity."

It is true that because of the limited number of channels available under the present division of the radio spectrum, all radio and television licensees are expected to include "public service" programs in their broadcast schedules. It is, however, difficult to define what constitutes "public service" programs to the satisfaction of everyone, and it is a fact that The Federal Communications Commission has yet to permanently rescind a television broadcast license for violation of this public trust. The broadcast industry claims to regulate itself, yet obviously an industry which is so subject to commercial influences will not often voluntarily act decisively to regulate excessive commercialism. As a result, however, of threats made in recent years by members of the Federal Communications Commission, the networks have produced and made available to local stations a number of effective educational programs. Such subjects as mathematics, physics and science have been taught, even for college credit on a national basis by means of commercial television. The fact remains, however, that these programs are sponsored and as such cannot be construed as "public service" in the true sense as envisioned by

the writers of the Federal Radio Act and later by the writers of the legislation establishing the Federal Communications Commission.

Programs of this kind, as effective as they are, preempt to a degree the privilege of the local community to design and air programs based on the needs and interests of its citizens.

Experience indicates that the personality, integrity and orientation of the individual program director are the determining factors in obtaining use of "local air" for "local purpose." Because of an overabundance of "public service" offerings it is apparent that decisions on which public service programs are used often become a matter of personal negotiation. The one who is known personally by the program director is more likely to obtain use of his material than one who is not.

With this in mind the producers of the "Plants are for People" series prepared a pilot program recorded by kinescope and personally presented it to television program directors in each of the major markets of Michigan. All directors agreed that the subject matter represented in the series was appropriate and in demand by their audiences. Detroit, which composes nearly one-third of the total population of the state, represented the most competitive situation. The series was placed under production without a commitment of time by a Detroit station; however, when the first program in the series was recorded on video tape and presented to the program director of the leading station in Detroit, it was accepted for broadcast.

The schedule for the series during 1960 was as follows:

Channel 12, Flint, WJRT	Saturday, 10:00 a.m., Program No. 1 - March 26
Channel 10, Lansing-Battle Creek-Jackson WILX	Saturday, 8:15 a.m., Program No. 1 - April 2
Channel 2, Detroit, Windsor Toledo WJBK	Saturday, 8:15 a.m., Program No. 1 - April 2
Channel 3, Kalamazoo, Grand Rapids	Saturday, 8:15 a.m., Program No. 1 - April 2
Channel 10, Lansing-Battle Creek-Jackson	Wednesday, 12:30 p.m., Program No. 1, April 6

Only eleven days separated the showing of program number one on the first station and the last station. It is estimated that the programs were available to 90 percent of the television receivers in the state of Michigan.

Evidence of the interest in program material of this kind was the fact that the program director of Channel 3, Kalamazoo, agreed to take a direct "on the air pickup" from Channel 10 in Jackson, for simultaneous broadcast. This arrangements was unprecedented except for sports programs and certain political programs in which the same sponsor financed the programs on both stations. These two stations were in competition for audience particularly in the Battle Creek-Marshall area. Another example of the eagerness of local stations for garden programs was the willingness of the major station in Detroit to reproduce the tape recorded programs for its own use and to mail the master program to the next station using it. All stations cooperated by paying the mailing costs of the programs.

Subsequent evaluation of the series by program directors was favorable (letters are contained in the Appendix) and those responding requested that it be repeated. Following completion of the broadcasts in Michigan, requests for the series were received and serviced in New York City, Chicago, Cleveland, and Columbus.

"Plants are for People" was a practical demonstration of many "how to do it" ideas for the lawn and garden. Inherent in each program were suggestions of plant materials, lawn and garden equipment, insecticides, herbicides and other materials which the homeowner might obtain for use on his own grounds. Because most homeowners and others who are for lawns and gardens have more time on week-ends in which to accomplish these jobs it was felt that any television program intended to influence their behavior should occur on or near the week-end. In addition, it was assumed that those who work in lawns and gardens on Saturday would be engaged in this work during the later morning and early afternoon and would thus be unavailable to television except early in the morning.

Using this criteria, the broadcast times in Detroit (8:15 a.m.), Kalamazoo (8:15 a.m.) and Lansing, Battle Creek, and Jackson (8:15 a.m.) were suitable whereas the times in Flint (10:00 a.m.) and the second broadcast in the Lansing, Jackson, Battle Creek area (12:30 p.m.) were less suitable. In view of the prevailing practice by commercial television program directors to utilize educational programs before 8:00 a.m. in the morning, after 12:00 midnight, and on Sunday it was felt the times given the "Plants are for People" series were, in the main, desirable.

The producers of the "Plants are for People" series faced essentially the same problems as any other group of television producers. Simply stated, given the limitations of time, budget, talent, equipment and technical skill, can a series of programs be produced which will compete for broadcast time of the commercial stations of the state? In this case the producers faced an additional question, will the programs be educationally sound and effect the desired changes in the behavior of the audience?

To answer these questions it was necessary to assess the kinds of advantages inherent in the University community over those in producing such programs elsewhere. Upon examination these advantages were found to be substantial. Not the least of these was the reservoir of knowledge relating to all aspects of horticulture. A well trained and imaginative television production staff unimpeded by commercial pressure constituted another distinct advantage. The opportunity of utilizing a realistic setting with live materials was perhaps the major advantage at least in terms of capturing the attention of viewers and influencing their behavior.

An outdoor studio was developed adjacent to an indoor studio with its control room and other facilities. This area was bounded by an attractive garden fence, eight feet in height covered on the back with translucent polyethylene permitting the passage of light but preventing a view by the cameras of activity beyond the fence. An area of approximately eight hundred square feet was screened off by the fence. Basic plantings of evergreens, roses and other woody plants were made on the camera side of the fence. Subsequent plantings and all other

lawn and garden demonstrations were executed during the programs themselves.

To facilitate the easy movement of cameras, a concrete apron was constructed extending in a semi-circle approximately twenty-five feet from the fence. The studio area was divided three ways as seen from the cameras, the foreground near the concrete apron was devoted to planting and cultural demonstrations particularly with annual flowers; the middle area was devoted to lawn maintenance and culture, and the background was devoted to the culture of larger ornamental plants such as roses, forsythia, and crabapple.

Effective presentation of live plant materials on television requires a high degree of coordination between teacher, cameraman and director. This problem is more acute in a natural setting where plants are actually growing and the camera must seek out the point to be featured. The physical facilities utilized in the "Plants are for People" series made this coordination easier, but by no means automatic. Each program was planned on paper before the first program was produced. Weekly production meetings preceded each program. A complete walk-through of each program was held using the teachers, the floor director and the booth director. Finally, a complete rehearsal was held with a full crew of television personnel.

Much of the natural beauty of the garden studio was largely lost on black and white television. More important, however, was the problem of color separation. Since all colors appeared in shades of gray, subtle differences such as the differences in green between a

well fertilized lawn and an unfertilized lawn were often lost on the home screen.

Critical evaluation of the programs as they were completed revealed an urgent need to isolate and emphasize those plants, plant parts, and practices being demonstrated. The use of two cameras, one for exclusive use in obtaining "closeups" was the most effective solution to this problem. Other techniques included painting certain parts to insure separation of shades, providing a contrasting background in the clothing of the performer, use of a second "on camera" performer to display plants and other properties to the camera, utilizing these items "in limbo" (off the set), and inserting pictures or graphic art to provide exposition of the point to be made. Additional techniques discovered during the series were those of sprinkling the soil, use of dry sand, and the use of peat moss, buckwheat hulls and other mulches to set plants off from the surrounding environment, and provide separation of shades.

For the most part, all demonstrations utilized authentic growing material. Frequently, however, it was necessary to temporarily transplant specimens to more advantageous locations. By far, the most important factor in obtaining fidelity in transmitting pictures of plant materials is gaining the interest and support of the television crew. Every effort was made to establish rapport with the director, his floor man and the camera man. Once there was a close working relationship, the problem of obtaining high quality visual transmission was minimized.

METHODOLOGY

Because of the nature of the subject matter and in order to make this study as valuable as possible to administrators of adult education programs, the case study method has been selected as a tool for evaluation. This method was selected also because of the uniqueness of the project upon which the study was based in terms of its administration, implementation, scope of the project in terms of its organization and financing, and because the methods employed throughout the project should be documented for use by those in adult education who have the same needs and interests which caused this project to be undertaken.

The purpose then, of this study is to discover new knowledge which will be of value to administrators of adult education programs who constantly face decisions of how to effect changes in the behavior of the largest number of people with the least per capita cost.

Table 5 contains the time schedule for the production, distribution and evaluation of the "Plants are for People" television series.

Following the completion of the production and distribution of the first thirteen programs in the spring of 1961, a questionnaire was designed to assist in the evaluation of the series (see Appendix). Ten questions related to social and economic characteristics and were designed to reflect communication behavior particularly with reference to television. Thirty-five questions related to specific lawn and garden practices recommended during the thirteen programs in the series. Each question could be answered with a check mark.

Table 5. Time schedule, "Plants are for People."

September, 1959	Planning initiated
March through June, 1960	Production, recording and distribution of 13 programs in Michigan
June, 1960	Survey of selected viewers, East Lansing, Michigan
January, 1961	Planning initiated for second series
March and April, 1961	Production, recording and distribution of 5 additional programs in Michigan
March, April and May, 1962	Broadcast and evaluation of ten selected programs in Columbus, Ohio

Using a table of random numbers, a sample of households in East Lansing and Okemos, Michigan was drawn. Four hundred and twenty-seven questionnaires were mailed to this sample. One hundred and thirty-two or thirty and nine-tenths percent were returned. Tabulated results showed that respondents who indicated having watched at least one program in the series made higher test scores than those who did not watch. Since no test of prior knowledge was made it was impossible to accurately measure the educational impact of the series. It was decided to utilize the results largely for refining the test instrument and as a gross indication of adjustments needed in the production of future series.

Results of this survey and other evidence gathered from commercial television station personnel was used in preparing five additional programs during March and April of 1961. The five best

programs from the 1960 series were added to this group making up the series used for distribution during 1961.

Demand for the series outside the state of Michigan increased following release of the second series. In the spring of 1962 it was used by WOSU-TV, the educational station of The Ohio State University. One of the original producers of the series had by that time become a member of the staff of The Ohio State University and was able to continue the evaluation begun in Michigan.

Prior to the first broadcast on WOSU-TV, a panel of specialists in the Department of Horticulture at The Ohio State University viewed the programs and selected practices which, in their opinion, were adequately and clearly presented and which were consistent with current recommendations of The Ohio Cooperative Extension Service. A schedule of questions was devised based on the practices recommended during the programs. Questionnaire construction was done under the supervision of the Department of Agricultural Economics and Rural Sociology, College of Agriculture and Home Economics of The Ohio State University.

As a safeguard against the possibility that any one program in the series of ten might have unusual qualities or that the date of its broadcast might bias the study, it was decided to base the study on three programs. The table of random numbers was used to select the programs for evaluation. Test programs became numbers three, six and nine.

Because the objective of the research was to measure the ability of the series to produce increased ability by viewers to answer

questions based on practices recommended in the test programs, tests of knowledge were applied both before and after the test programs. Increased knowledge was measured by increases in correct answers as determined earlier by the panel.

As a further safeguard, it was decided to maintain a check group for each program. The check groups did not receive a prior test and, therefore, by comparing the performance of these groups with that of the primary groups, the bias represented by the teaching value of the instrument itself could be removed.

The effective broadcast range of WOSU-TV as determined by engineering surveys conducted by the Federal Communications Commission (see Appendix) dictated the area from which the sample could be drawn. From this area using a block sampling design 1363 addresses were selected. This group was divided equally into nine sub-groups in order to provide two groups for testing before each test program and one for testing after.

It was considered necessary to call the attention of the people of Columbus and particularly those within the viewing area of WOSU-TV to the availability of the series of programs on lawn and gardening to be broadcast during the spring of 1963. At the same time it was necessary not to prejudice the results of the study by allowing potential respondents to make an association between the station and the individual conducting the study. The solution was to provide promotional material for use in the monthly program guide regularly issued by the station to its mailing list. Secondly, a letter was prepared (see Appendix) under the signature of The Cooperative Extension specialist

in gardening and ornamental horticulture. This letter was mailed to the entire sample during January of 1963. The third method used to promote viewing of the series was that of news releases in Columbus newspapers credited to The Cooperative Extension specialists in gardening and ornamental horticulture.

Limitations related to undesirable days of the week and times of day as experienced when dealing with commercial television stations were eliminated for this study. The management of WOSU-TV made available the day and the time period deemed most advantageous for reaching viewers with interests in gardening and ornamental horticulture. This was determined to be Friday evenings at 7:30 p.m. Eastern Standard Time. Friday was chosen because homeowners could take action to implement the recommendations made in the programs during the weekend when schedules are normally less rigid. The 7:30 hour is considered "Class A" time by commercial broadcasters since it follows the dinner hour and normally includes the time period when adults are most accessible to their television receivers. It likewise avoids the time when the most popular entertainment shows are available. The schedule of programs is contained in the Appendix and includes the major subject matter topics to be covered in each program.

Separate question schedules were prepared for each of the three test programs. Only those practices which were deemed adequately presented were utilized in the tests. The number of questions (see Appendix) ranged from 16 on test program number 1 to 13 on program number 2, and 15 on program number 3. The check groups, those receiving schedules only following the test programs answered the same

post-program questions as those who answered both before and after questions. Table 6 indicates the total number of schedules mailed, number returned, percent returned, number returned before and after the test programs, the number viewing test programs and the percent viewing test programs.

The percent of respondents returning questionnaires was considered to be entirely satisfactory, ranging from a low of 25.16 percent to a high of 38.67 percent. The critical group in terms of this procedure was the group returning questionnaires both before and after. The range was from 11.84 percent to 24.67 percent. Of those who returned questionnaires both before and after the test programs, the percent who actually watched the programs ranged from a low of 4.17 percent to a high of 10.67 percent.

The nine groups described in Table 6 were combined into six for testing learning from the test programs. The test of learning was the difference in correct answers before and after the test programs. Three groups were asked to respond both before and after the test programs and three were asked to respond only following the test programs. Table 7 shows the pattern of testing by groups.

One purpose of utilizing a check group which was only asked to respond following each test program was to ascertain the extent of conditioning brought about by submitting two identical question schedules in a relatively short length of time. If responses by those in groups 2, 4, and 6 who received questions only after the programs were similar to the responses of groups 1, 3, and 5, then it could be assumed that the effect of the questionnaire could be discounted in testing the performance after with the performance before.

Table 6. Number tested and response by groups.

	Total Mailed	Total Returned	Percent Returned	Total Returned		Percent Viewing Test Program	Percent Viewing Test Program
				Both Before and After	Both Before and After		
Group 1	154	27	37.01	9	17.53	9	5.83
Group 2	147	55	37.41	28	19.05	7	4.76
Group 3	155	40	25.16	-	--	2	1.29
Group 4	150	58	38.67	31	20.67	16	10.67
Group 5	150	55	36.67	36	24.67	12	8.00
Group 6	154	57	37.01	-	--	7	4.54
Group 7	152	41	26.97	18	11.84	12	8.55
Group 8	144	44	30.56	23	15.97	6	4.17
Group 9	157	51	32.48	-	--	6	3.82
	1363	428	31.40	145	16.15	77	5.65

Table 7. Combination of test groups.

Program Number	Prior Testing	Post Testing
1	Group 1	Group 1
2	3	2 3 4
3	5	5 6

PRESENTATION AND TREATMENT OF THE DATA

Data relative to the performance of the television series "Plants are for People" were collected during the periods of its broadcast during the years 1961, 1962 and 1963. The general hypotheses, dealing with resources necessary for producing such a series, acceptance by the commercial stations for broadcast at desirable time periods were possible to test by the fact of their broadcast and their time of broadcast. The general hypotheses dealing with successful transmission of specific practices in gardening and ornamental horticulture and tests of knowledge relating to these specific practices necessarily involved more elaborate research mechanisms.

In order for the study to be of value for practical application to problems of administrators of adult education programs it was desirable to further explore the performance of viewers and nonviewers according to their socio-economic characteristics.

The basis then for discriminating between performance in terms of successful transmission and socio-economic characteristics of the audience was the test of learning. Careful precautions were taken to insure that changes in ability to answer questions on specific gardening and ornamental horticulture practices were attributable to viewing the test programs.

The conclusions reached relative to the acceptance and use of the series were necessarily largely made on the basis of the Michigan situation. The same is true of the conclusions regarding

recommendations for producing successful television programs in gardening and ornamental horticulture.

The tests of learning were applied before and after the three programs were broadcast in Ohio. No claim is made that the audience for the test programs was the same as the previous audience in Michigan, nor that the audience for the test programs was a "typical" audience. On the contrary, the audience for the educational television station WCSU-TV was undoubtedly an atypical audience. The characteristics, however of the kind of people who watch educational television programs are, as the literature reveals, much the same kind of people who take the most interest in gardening and ornamental horticulture. There is reasonable evidence that many of these same characteristics apply to the most enthusiastic supporters of local adult education programs.

Table 8 summarizes the percent of correct answers by groups following each of the test programs. Groups 1, 2, and 3 also answered the same questions prior to the programs but only the post program results are given here in order to compare the performance of those who received questionnaires before and after with those who received them only after the test programs. Comparison of the performance of groups 1 and 2, groups 3 and 4 and groups 5 and 6 show no significant difference in ability to correctly answer the questions. Having accepted this assumption the analysis is hereafter limited to a comparison of performance between those who answered the questions both before and after the test programs. Additional data relative to the

Table 8. Comparison of correct answers following three test programs.

Question	Percent Answering Correctly					
	Program 1		Program 2		Program 3	
	Group		Group		Group	
	1 N-64	2 N-34	3 N-84	4 N-50	5 N-50	6 N-51
1	57.9	64.7	95.1	85.7	60.0	28.8
2	87.5	90.4	77.8	62.9	68.1	64.6
3	35.8	14.7	77.3	38.6	65.7	64.3
4	87.3	78.2	74.1	45.5	55.1	33.3
5	77.6	67.7	90.2	91.1	75.6	80.0
6	50.0	41.4	76.0	67.4	65.0	86.1
7	61.4	57.6	46.8	29.5	40.4	16.2
8	30.8	24.2	34.4	12.0	71.2	64.8
9	76.4	75.0	51.9	21.5	40.9	36.2
10	48.9	22.2	71.7	61.3	42.5	52.7
11	54.5	51.6	67.9	65.9	58.2	44.2
12	53.7	52.9	46.3	37.8	56.4	52.2
13	69.1	77.2	75.4	72.7	59.5	56.0
14	42.6	28.1	-- *	--	86.4	86.2
15	78.5	64.7	--	--	50.0	40.5
16	41.3	57.2	--	--	-- *	--

*Number of questions varied by programs.

distribution of answers and percent of respondents answering correctly are contained in the Appendix.

Table 9 compares the percent of correct answers given by those who viewed the test programs with those who did not view the programs. This table reflects only the performance of the respondents before the programs were broadcast and only includes those who returned questionnaires before and after the programs. Not all respondents indicated whether or not they viewed the programs. More complete data giving the distribution of answers and performance of those respondents who did not indicate viewing or not viewing can be had from detailed tables in the Appendix.

No significant differences in ability to answer the questions before the test programs was observed. In fact, the significant point in this comparison is the similarity of performance between those who eventually viewed the test programs and those who did not.

Table 10 compares the percent of correct answers by those who viewed the programs with those who did not view and reflects their performance after the test programs. Performance was almost universally better among those who had viewed the programs.

Additional data giving the distribution of answers, the number not answering questions, and the number who did not indicate whether or not they viewed are available in detail in the Appendix.

In order to apply statistical analysis to the results reported in the previous tables, it was deemed advisable to summarize the correct and incorrect answers by viewers, non-viewers and those respondents who gave no indication of whether or not they viewed.

Table 9. Comparison of correct answers prior to the test programs by respondents viewing and not viewing the programs.

Question	Percent of Correct Answers					
	Viewed			Didn't View		
	Group					
	1 N-15	3 N-32	5 N-19	1 N-31	3 N-31	5 N-22
1	46.7	78.1	10.5	54.8	83.9	22.7
2	80.0	50.0	68.4	74.2	38.7	50.0
3	26.7	43.8	52.6	6.5	51.6	31.8
4	59.9	65.6	31.6	58.1	48.4	31.9
5	39.9	87.5	63.2	67.7	80.6	59.1
6	26.7	68.8	78.9	35.5	51.6	59.1
7	40.0	34.4	15.7	45.2	32.3	4.5
8	46.7	15.6	68.4	54.8	6.4	59.1
9	46.7	31.3	36.8	61.3	22.5	18.2
10	20.0	53.1	31.6	12.9	48.4	13.6
11	53.3	59.4	47.4	35.5	48.4	22.7
12	33.3	37.5	36.8	22.6	29.0	36.3
13	53.3	68.8	42.1	64.5	58.1	22.7
14	53.3	--	84.2	48.4	--	63.7
15	60.0	--	42.1	74.2	--	31.8
16*	40.0	--	--	32.2	--	--

*The number of questions varied by group.

Table 10. Comparison of correct answers by respondents after the test programs by respondents viewing and not viewing the programs.

Question	Percent of Correct Answers					
	Viewed		5 N-19	Didn't View		
	1 N-15	3 N-32		1 N-31	3 N-31	5 N-22
1	60.0	100.0	78.9	51.7	83.9	31.8
2	100.0	81.3	89.4	77.4	58.1	45.5
3	73.3	84.3	89.4	19.4	64.5	36.4
4	100.0	90.6	89.4	71.0	61.3	36.4
5	80.0	96.9	84.2	80.7	87.0	59.1
6	53.3	90.6	89.4	45.2	51.6	45.5
7	80.0	62.4	79.0	54.9	35.5	4.5
8	80.9	43.8	78.9	54.9	16.1	54.6
9	93.3	84.4	63.2	64.5	19.4	18.2
10	66.6	93.8	63.2	35.5	58.0	9.1
11	60.0	84.4	89.4	51.6	54.8	27.3
12	86.6	78.1	38.8	38.7	29.0	40.9
13	80.0	75.0	84.2	54.9	71.0	18.2
14	73.3	--	100.0	25.8	--	63.7
15	80.0	--	78.9	74.2	--	27.3
16*	60.0	--	--	25.8	--	--

*The number of questions varied by group.

Table 11 shows a higher total number of correct answers for both viewers and non-viewers following the test programs, however the number of incorrect answers decreased considerably among viewers while non-viewers decreased only slightly following two programs and actually increased following one program.

Table 11. Summary of correct and incorrect answers of those who responded both before and after the test programs.

Program 1, Group 1						
	BEFORE			AFTER		
	Viewed N-15	Didn't View N-31	Didn't Say N-6	Viewed N-15	Didn't View N-31	Didn't Say N-6
Correct	103	221	38	180	261	13
Incorrect	137	278	60	60	235	85
Total	240	499	98	240	496	98
Program 2, Group 3						
	N-32	N-31	N-4	N-32	N-31	N-4
Correct	222	186	17	341	214	21
Incorrect	194	217	36	75	189	32
Total	416	403	53	416	403	53
Program 3, Group 5						
	N-19	N-22		N-19	N-22	
Correct	135	126	--	227	114	--
Incorrect	150	204	--	58	216	--
Total	285	330	--	285	330	--

The Chi square test was determined to be the most desirable method of testing the significance of the difference in correct answers. Table 12 gives the summary of results as they pertain to program 1 prior to its broadcast.

Table 12. Summary of correct and incorrect answers prior to program 1.

	Viewed	Group 1 Didn't View	Total
Correct	103	221	324
Incorrect	137	278	415
Total	240	499	739

$$\chi^2 = \frac{(103)(278) - 137(221)}{240 \cdot 499} \cdot \frac{739}{324 \cdot 415}$$

$$\chi = .12388$$

At the 5 percent level the table value is 3.841, therefore there is no significance in the increase in correct answers among viewers.

Table 13. Summary of correct and incorrect answers following program 1.

	Viewed	Group 1 Didn't View	Total
Correct	180	261	441
Incorrect	60	235	295
Total	240	496	736

$$\chi^2 = \frac{(180)(235) - 60(261)^2}{240 \cdot 496 \cdot 441 \cdot 295}$$

$$\chi = 33.728166$$

At the 5 percent level there is significant increase in correct answers among viewers.

Table 14. Summary of correct and incorrect answers prior to program 2.

	Viewed	Group 3 Didn't View	Total
Correct	222	186	408
Incorrect	194	217	411
Total	416	403	819

$$\chi^2 = \frac{(222)(217) - 194(221)^2}{416 \cdot 403 \cdot 408 \cdot 411}$$

$$\chi = .81834$$

At the 5 percent level there is no significance in the increase in correct answers among viewers.

Table 15. Summary of correct and incorrect answers following program 2.

	Viewed	Group 3 Didn't View	Total
Correct	341	214	555
Incorrect	75	189	264
Total	416	403	819

$$\chi^2 = \frac{(341)(189) - 75(214)^2}{416 \cdot 499 \cdot 555 \cdot 264} \cdot 819$$

$$\chi = 63.0762$$

At the 5 percent level, program 2 increased significantly in the percent of correct answers among viewers.

Table 16. Summary of correct and incorrect answers prior to program 3.

	Viewed	Group 5 Didn't View	Total
Correct	135	126	261
Incorrect	150	204	354
Total	285	330	615

$$\chi^2 = \frac{(135)(204) - 150(126)^2}{285 \cdot 330 \cdot 261 \cdot 354} \cdot 615$$

$$\chi = 5.2832$$

At the 5 percent level there is significance in the increase in correct answers among viewers.

Table 17. Summary of correct and incorrect answers following program 3.

	Viewed	Group 5 Didn't View	Total
Correct	227	114	341
Incorrect	58	216	274
Total	285	330	615

$$\chi^2 = \frac{(227)(216) - (58)(114)}{285 \cdot 330} \cdot \frac{615^2}{341 \cdot 274}$$

$$\chi = 125.9367$$

At the 5 percent level there is significantly more correct answers among viewers than non-viewers.

Tables 15, 16 and 17 show the difference between viewers and non-viewers in their ability to answer the test questions to be insignificant in two of the three pre-program tests, and to be significant in each of the three post-program tests. The hypothesis that knowledge of specific recommended practices in gardening and ornamental horticulture can be successfully transmitted by open circuit television is supported.

Having established that each of the test programs was successful in increasing the ability of the audience to answer the questions correctly, it remains to further analyze the audience in terms of its

socio-economic characteristics to determine their effect on ability to answer correctly. Using the original question schedule contained in the Appendix the possible responses to each question dealing with socio-economic characteristics were grouped into response one and response two in order to test each of the sub-hypotheses as follows:

<u>Number</u>	<u>Response</u>	<u>Characteristic</u>
1	1	Those living at the same address five years or less.
	2	Those living at the same address more than five years.
2	1	Single family dwelling owned by occupant.
	2	Single family dwelling, duplex or apartment rented by occupant or duplex or apartment owned by occupant.
3	1	No college education.
	2	One or more years of college education.
4	1	Annual income less than \$9000.
	2	Annual income more than \$9000.
5	1	Lawn and garden work performed by the man of the house.
	2	Lawn and garden work performed by homemaker, children or hired help.
6	1	Less than \$50 spent annually on lawn and garden.
	2	More than \$50 spent annually on lawn and garden.
7	1	Lawn care a hobby.
	2	Lawn care to maintain value of the house, supplement the food supply, or social obligation.

<u>Number</u>	<u>Response</u>	<u>Characteristic</u>
8	1	Three or more lawn and gardening activities from the following: lawn, shrubs, flowers, vegetables, fruit, trees, other.
	2	Less than three lawn and gardening activities.
9	1	Gardening and reading about gardening either first, second or third choice in terms of use of leisure time.
	2	Gardening and reading about gardening lower than third choice.
10	1	Those belonging to garden clubs.
	2	Those not belonging to garden clubs.
11	1	Those who subscribe to three or more of the following magazines: Better Homes & Gardens, American Home, House Beautiful, Ohio Farmer, House and Garden, other.
	2	Those who subscribe to less than three of the above magazines.
12	1	Those using information from bulletins, radio, television or newsletters prepared by the Cooperative Extension Service.
	2	Those who have not used information prepared by the Cooperative Extension Service.
13	1	Those who indicate either radio or television as first, second or third choice as a source of gardening and ornamental horticulture information.
	2	Those who indicate radio and television as lower than third choice as a source of information on gardening and horticulture.

The "t" test was employed to check the significance of the increases in correct answers to each question. The following assignments were made:

1. X_{ij} = increase in correct answers
2. $\bar{X}_i$ = average increase in correct answers
3. $\sum X_{ij}^2$ = sum of the squares of increase in correct answers

The formulas used were as follows:

1. $\sum X_{ij}^2 = \sum X_{ij}^2 - \frac{(\sum X_{ij})^2}{N_1}$
2. $S_{\bar{X}_1}^2 - \bar{X}_2^2 = \frac{\sum X_{ij}^2}{(N_1 - 1)N_1} - \frac{\sum X_{2j}^2}{(N_2 - 1)N_2}$
3. $S_{\bar{X}_1}^2 - \bar{X}_2^2 = S_{\bar{X}_1}^2 - \bar{X}_2^2$
4. $t = \frac{\bar{X}_1 - \bar{X}_2}{\frac{S_{\bar{X}_1}^2}{N_1} - \bar{X}_2^2}$
5. $df = N_1 + N_2 - 2$

Table 18 summarizes the average increase in correct answers by those viewers whose answers to questions on socio-economic and communications characteristics placed them in response 1 or response 2.

Table 19 summarizes the results of the "t" test for significance of the increases in test scores as indicated in Table 18. A detailed summary including total increases in correct answers by response groups and total number of viewers answering each question can be found in the Appendix.

Table 18. Average increase in correct answers response 1 and 2.

Question Number	Program					
	One		Two		Three	
	Response 1	Response 2	Response 1	Response 2	Response 1	Response 2
1	5.00	4.14	3.80	3.68	4.83	3.29
2	3.80	6.20	3.19	6.80	4.29	6.50
3	11.00	4.14	3.18	3.90	4.20	5.14
4	5.13	4.00	3.67	3.09	4.92	4.86
5	3.00	7.00	3.40	4.50	5.00	3.83
6	4.00	8.50	3.13	4.00	4.88	4.91
7	5.33	4.11	2.75	3.72	4.00	6.00
8	2.40	9.00	2.13	4.67	4.17	6.14
9	3.50	6.83	3.78	3.06	3.25	6.67
10	.75	6.00	-1.00	3.87	5.00	4.44
11	2.00	5.25	4.17	3.00	2.00	5.42
12	2.73	9.75	3.32	4.31	4.63	6.33
13	3.00	11.00	3.50	3.13	5.00	5.15
14	4.00	5.00	3.73	3.12	4.88	4.56

Table 19. Results of 't' test for significance of increases in correct answers.

Question Number	One		Program Two		Three	
	Signif-icant	Not Signif-icant	Signif-icant	Not Signif-icant	Signif-icant	Not Signif-icant
1		.3441		.1189		1.8382
2		.8397	- 4.2430			1.5786
3	5.555			- .7112		- .5778
4		.4277		.5507		.0470
5		1.8131		-1.8912		1.0218
6		.6815		-1.0250		- .02267
7		.5239		.8016		-1.7184
8	-2.4101		- 2.9495			-1.5149
9		-1.2007		.6402	3.5586	
10	-3.4074		-10.2125			.8406
11		-1.7182		1.0122	4.4514	
12	3.0940			- .9324		1.2194
13	-2.4997			.2538		.0617

The results reported in the preceding two tables will first be related to the general hypothesis "increased knowledge of specific recommended practices in gardening and ornamental horticulture resulting from a series of open circuit television programs, will be influenced by the socio-economic characteristics and the communications habits of the viewers."

In program two there was significant increase in correct answers among those viewers living in single family dwellings in contrast to those living in owned duplex, rented single family dwelling, or rented duplex or apartment.

Program one resulted in significant increase in correct answers among viewers with college education in contrast to those with no college education.

Programs one and two produced significant increases in correct answers among those viewers who indicated they spent time in at least three typical lawn and garden activities.

Program three showed significant increases among those viewers who specified gardening and reading about gardening as either their first, second, or third most popular leisure time activity.

Programs one and two yielded significant increases in correct answers among viewers who were members of garden clubs over those who were not.

Program three resulted in significant increases among those viewers who indicated they received at least three magazines dealing with lawn and garden information in contrast to those who received less than three.

Those viewers who indicated they had made use of information from the Ohio Cooperative Extension Service did significantly better in answering the test questions on program one than those who had not.

In seven of thirteen socio-economic and communications behavior questions there was significant increase resulting from viewing of at least one of the three test programs. The general hypothesis is, therefore, supported.

The results reported in the previous two tables failed to establish any significant difference in the ability of respondents to answer questions based on their tenure at a given address. The average increase was slightly in favor of those who had lived at the same address for less than five years. It is assumed that people with less tenure at an address are probably younger, probably have less income and probably are more receptive to any information which will make or save them money.

Annual income, amount spent on the lawn and grounds, the motivation for taking care of the lawn and garden, and the member of the family doing the work were all factors showing no significance in terms of learning from the three programs.

Neither was there significant difference in increased correct answers on the part of those viewers who said they used radio or television as a first, second, or third source of information on lawn care and gardening compared to those who considered them less important.

GENERAL CONCLUSIONS

1. The first general hypothesis stated:

"Resources for producing a successful series of educational television programs based in gardening and ornamental horticulture can be mobilized on a Land Grant University campus."

At first glance one might consider this to be an obvious contention and were it not for the inclusion of the word "successful," that position might be justified.

"Successful" as has already been pointed out is defined as "meeting the overall objectives of the educational agency initiating the project, in this case, the Cooperative Extension Service of Michigan State University."

In the program plans for the Michigan Extension Service the overall objective as stated is "a more prosperous, productive, and satisfying life for the people of Michigan."

If the kind of subject matter included in the "Plants are for People" series can be effectively communicated to the citizens of the state, then this objective will certainly have been, at least in part, met.

The objective measurements applied to the test groups in connection with three programs of this series show that learning took place. The general hypothesis is, therefore, considered to be supported.

It must be added, however, that administrators of adult education programs need to have documented some of the procedural results

relating to this hypothesis if they are to go beyond simply deciding that this effort was successful. Subjective evaluation by the administrators of the educational agencies sponsoring this series of programs was favorable enough that resources were provided to produce a second series. The subject matter department which benefited most from the series considered it the major effort of the year in making this kind of information available to the people of the state.

2. The second general hypothesis stated:

"A series of educational television programs based on gardening and ornamental horticulture can be accepted by commercial television stations for broadcast."

The question at issue here is not one of whether commercial stations will accept such programs but why will they accept or not accept them. Objective tests herein reported showed that those viewers who ranked radio or television first, second or third as a source of information in this kind of subject matter were better able to answer test questions than those who ranked them as less important. Commercial radio and television program personnel must be acutely aware of the kind of programs which will interest and inform their audience as well as entertain them. The fact that this series was accepted for broadcast in every major market in Michigan plus showings in three other states, indicates that it met the criteria deemed important by commercial station program directors.

Again the application of this conclusion in terms of a practical program in adult education depends on further analysis of this project as a case study. This series was unique in several aspects. Perhaps

the most significant in this regard was the use of an outdoor studio providing an authenticity not often approached in similar television presentations. The series demonstrated appeal along with ability to teach and therein lies its favorable evaluation by the commercial television industry.

3. The third general hypothesis stated:

"A series of educational television programs based on gardening and ornamental horticulture can be broadcast at desirable time periods on commercial stations."

As is the previous discussion, the important factor is why the series was accepted and broadcast at desirable time periods. The experience clearly shows that the time periods made available met the definition as stated, "those times of day when the audience for whom the subject matter is intended is most likely to be viewing television." Again the objective measurement showing that viewers who specify radio or television as first, second or third as a source of information on lawn and gardening answered test questions more successfully serves to support the general hypothesis.

Commercial television station program managers must take an objective attitude toward requests for broadcast time. Educational programs are typically accorded time periods not potentially very profitable by commercial standards. The success of this series in being awarded "class A and B" time is strong indication of its balance of educational value and commercial appeal.

4. The fourth general hypothesis stated:

"Subject matter relating to gardening and ornamental horticulture can be successfully transmitted visually by television."

The hypothesis is not intended to test the electronic capability of the television system to transmit pictures of acceptable quality. It is, on the other hand, intended to test whether in actual practice the resources necessary to produce and distribute a series of programs like "Plants are for People" can bring about desired changes in human behavior. The test, then is one of learning. Objective measurements showed the difference between viewers and non-viewers of the three test programs in their ability to answer the test questions was insignificant before viewing the programs and highly significant in their difference following the programs.

The hypothesis is, therefore, considered to be supported. It is important to point out that these questions were based on demonstrations of techniques and materials used to teach specific current recommendations in the subject matter of the series. Effective teaching depended on the visual impact supported by the audial impact. It is extremely doubtful that the success demonstrated in the three test programs would have been possible without effective visual presentation.

5. The fifth general hypothesis stated:

"Knowledge of specific recommended practices in gardening and ornamental horticulture can be successfully communicated through use of open circuit television."

Knowledge is defined as acquaintance with or understanding of practices or theory relating to gardening and ornamental horticulture. In total, forty-four practices or recommendations in this subject were tested in the three sample programs. Correct answers to the test

questions were specific and carefully related to the presentations made in the programs. Results showed that not only did viewers improve in their ability to answer the questions correctly after viewing the test programs, they also decreased substantially the number of incorrect answers after viewing the test program, a fact which was not true of non-viewers. The general hypothesis is, therefore, considered to be supported.

6. The sixth general hypothesis stated:

"Increased knowledge of specific recommended practices in gardening and ornamental horticulture resulting from a series of open circuit television programs will be influenced by the socio-economic characteristics and communications habits of the viewers."

The performance of viewers of the three test programs classified into thirteen pairs of responses has previously been reported. The fact that in seven pairs of responses there were significant increases in ability to answer test questions which indicates that the general hypothesis is supported. It must be added, however, that the results from answers to questions relative to communications habits showed greater variation than those from questions relative to socio-economic characteristics.

IMPLICATIONS FOR FUTURE RESEARCH

The principal thrust of this study was that of establishing the teaching value of a series of open circuit television programs in the field of gardening and ornamental horticulture. Additional research needs to be directed toward more effective presentation of this kind of subject matter. This study did not identify effective presentation techniques and those which were ineffective.

Additional information is needed relative to the kind of personalities which will be best accepted by the audience. How much "showmanship" is possible without adversely affecting the credibility of the subject matter? Can professional performers present the subject matter effectively and believably?

More information is needed regarding the audience for this kind of subject matter. This study seems to indicate that those who know little about gardening and lawn skills learned more from the series. Is it desirable to be more specific in terms of the audience, for example by producing an elementary series for one audience and an advanced series for those with more competence?

More needs to be known about supplementary material to accompany the television presentation. To what extent do viewers forget what they see and hear on radio and television? Will bulletins designed to complement the television presentation be effective?

Should programs of this kind be strictly public service presentations or would they be accepted as well if they were commercially

sponsored or contained commercial inserts? What would be the reaction by audiences if university personnel appeared regularly on commercially sponsored programs?

The whole question of the use of a series of this kind by local administrators of adult education programs remains largely unanswered. Demand for information and help in matters of gardening and ornamental horticulture is tremendous and almost certainly will increase as leisure time and population increase. Local administrators have difficulty obtaining qualified instructors to teach classes. Agencies like the Cooperative Extension Service have such demands for other kinds of subject matter help that they cannot devote unlimited resources to programs that tend to be largely urban in character.

Television appears to be one logical answer to this dilemma. How, then can those who have the interest, those who have the responsibility and those who have the information be brought together?

RECOMMENDATIONS

1. Results of this study are interpreted to indicate that those departments, colleges and agencies resident on and related to Land Grant University campuses should seriously consider educational television as a means of dispensing information in the field of gardening and ornamental horticulture. Resources in terms of monies, time and talent of professional personnel, competencies of technical personnel and facilities for production, recording and distribution should be committed to this area of subject matter as a partial solution to the overwhelming problem of inadequate personnel to meet the demand.

2. Series such as reported in this study should be made available to commercial television stations on a regular and continuing basis. The experience of this series in terms of acceptance and time placement indicates a reliable demand by commercial broadcasters for subject matter in gardening and ornamental horticulture presented by specialists even though they are not professional performers.

3. Recommended practices in gardening and ornamental horticulture should be disseminated by television. The unique combination of sound and sight presented in a realistic setting by specialists representing a Land Grant University can result in viewing and learning by a representative audience.

4. Television programs in gardening and ornamental horticulture should be geared to those viewers with wide interests in the field not only in terms of their participation but in use of their leisure.

They should recognize related activities of the Cooperative Extension Service and provide supplementary information to that which is gained through television.

5. Administrators of adult education in local school systems should encourage production of television series in fields related to horticulture and utilize them in their program.

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APPENDIX

THE FOLLOWING QUESTIONS CAN ALL BE ANSWERED WITH ONE CHECK MARK.

1. Do you rent your home? Yes____ No____
2. How long have you lived in your present home?
 - Less than one year _____
 - One to five years _____
 - Over five years _____
3. Where do you get the most helpful information on gardening?
 - From neighbors _____
 - From television _____
 - From hardware or garden store _____
 - From bulletins _____
 - From magazines _____
 - From newspapers _____
4. How much would you estimate you spent on your lawn and garden last year?
 - Under \$50 _____
 - \$50 to \$200 _____
 - Over \$200 _____
5. Good seed is essential to a good vegetable garden. You can be sure of good seed by:
 - Ordering through a seed catalog _____
 - Saving seed from last year's plants _____
 - Buying from a reputable dealer _____
6. The garden plot must be plowed, spaded or otherwise torn up before planting seeds or plants. The purpose of this is:
 - To loosen the soil so that sprouting seeds can push through to the surface _____
 - To mix the subsoil with the top soil _____
 - To enable moisture and air to pass through the soil more easily _____
7. Every garden should be planned on paper. This makes it possible
 - To get more plants in less space _____
 - To harvest vegetables earlier _____
 - To plan continuous harvest by making successive plantings _____
8. Many insects are harmful to vegetable gardens but earthworms are helpful because
 - They eat harmful insects _____
 - They dig holes which allow rain water to soak into the soil _____
 - They mix and loosen the soil so that moisture and air reach plant roots _____

9. Fertilizer is necessary to insure good plant production. The three elements most often needed are:
- Nitrogen, calcium and potash _____
 - Nitrogen, phosphorus and boron _____
 - Nitrogen, phosphorus and potash _____
10. The ingredients in fertilizer are always marked on the bag. If a bag is marked 20-5-5, it means
- The bag contains 30 pounds of plant food _____
 - The bag contains 20% nitrogen _____
 - The bag contains 20% nitrogen, 5% phosphorus and 5% boron _____
11. Home gardeners can grow many of their own plants and save money. The best place to start these plants is
- A window on the south side of the house _____
 - A cold frame or hotbed _____
 - Outdoors on the south side of the house after the weather turns warm _____
12. Small greenhouses can be built at low cost using
- Old window sash _____
 - Burlap bags _____
 - Transparent polyethylene _____
13. Ordinary garden soil should not be used to start vegetable plants under cover. It is better to use
- Sand _____
 - Half sawdust and half sand _____
 - Sandy soil, vermiculite and sand _____
14. Some vegetables must be planted after all danger of frost is over. Examples of these are:
- Tomatoes, carrots, peas _____
 - Melons, tomatoes and beans _____
 - Corn, radishes and cabbage _____
15. Roses can be grown successfully in this climate, however, extreme cold weather
- Kills the stems back to the soil level or to where the plants have been mulched _____
 - Causes the canes to split _____
 - Causes them to bloom later in the spring _____
16. Roses should be pruned for best results. This insures
- Less top growth to be sprayed _____
 - Less leaf surface to make food _____
 - Growth of new flowering wood _____

17. Roses respond well to fertilizer:
 It makes them more susceptible to diseases _____
 It kills the fungus on the stems _____
 It makes them grow larger and produce _____
 more blooms _____
18. A complete fertilizer is advisable for roses. It should be applied
 As early in the spring as possible _____
 As soon as new growth begins _____
 Regularly once a month until October _____
19. Care should be taken when buying a rose bush. A good bush should have
 From 3 to 5 sturdy stems _____
 Stems smaller than a lead pencil _____
 Stems at least 3 feet long _____
20. It is important to have roses in good condition at time of planting
 They should always be wrapped tightly in _____
 a package _____
 They should be potted in soil _____
 It doesn't matter as long as they are _____
 protected from drying out _____
21. It is important to plant roses at the proper depth. That means
 At least 3 inches below the surface of _____
 the soil _____
 The soil should be 1 inch below the _____
 place where the stem was budded _____
 The bud union should be 3 inches above _____
 the level of the soil _____
22. Roses respond to the right soil conditions. The best soil is
 Clay _____
 A good garden loam _____
 Light sand _____
23. Hybrid tea roses will grow better in the northern states if they have a good root system. Usually the roots are:
 The same as the top _____
 A wild rose on which has been grafted the _____
 hybrid tea _____
 A climbing rose rootstock _____

24. Roses are subject to a wide variety of insect and disease injury.
 To control these it is easier to treat
 Independently for each insect and disease _____
 Separately for each disease _____
 With a general purpose spray or dust at _____
 least once a week _____
25. The quickest, satisfactory way to get rid of lawn weeds is
 Use chemical sprays _____
 Dig them out _____
 Cut the top off close to the ground _____
26. The best long time method of weed control is
 Chemical spraying _____
 Dry application of chemicals _____
 A thick, vigorous sod _____
27. To be most effective, weed killers must be used
 When the weeds are growing rapidly _____
 After a dry period when the weeds are weak _____
 Right after mowing the grass _____
28. Chemical sprays should be used on broad leaved weeds
 In the middle of the summer _____
 After the ground has frozen _____
 In the spring and again in the fall _____
29. The best chemical to use on dandelions is
 2-4, D _____
 Sulphuric Acid _____
 Kerosene _____
30. The safest time of day to spray weeds is
 When the wind is strong _____
 At sundown _____
 When the air is still _____
31. Care must be taken not to spray 2-4, D on flowers or shrubs
 because
 2-4, D will stain flowers and shrubs _____
 2-4, D would poison dogs that might touch _____
 the flowers and shrubs _____
 2-4, D will also damage flowers and shrubs _____
32. For touch up applications and certain hard to kill weeds, you
 can use
 A special glass jar attached to your _____
 garden hose _____
 A hollow wand filled with chemical _____
 spray material _____
 A handful of common salt _____

33. Soon after spraying dandelions, you can observe the effect of the weed killer. The first evidence is
- Brown leaves _____
 - Leaves unusually brittle _____
 - Stems twisted and elongated _____
34. Bulbs provide early color in the garden in the spring. Three flowers which grow from bulbs are:
- Tulips, daffodils, and lily of the valley _____
 - Tulips, daffodils and bloodroot _____
 - Tulips, daffodils and hyacinths _____
35. Crab grass sprouts and begins to grow most rapidly
- Early in the spring _____
 - Late in the fall _____
 - About the middle of April _____
36. Bulbs must be planted in the fall in order to have spring blooms. This is because:
- The ground isn't frozen in the fall _____
 - They have a chance to develop roots before cold weather _____
 - They have to go through a dormant period _____
37. Narcissus is also known as
- Daffodils _____
 - Hyacinths _____
 - Crocus _____
38. After crocus have bloomed, the leaves should not be cut, because
- They look pretty in your lawn during the summer _____
 - They insure bigger bulbs and flowers next spring _____
 - Cutting the leaves opens the bulb to disease _____
39. The larger the bulb, the larger will be the bloom. A large hyacinth bulb will often give you
- More fragrance _____
 - One or more additional blooms per stalk _____
 - Better colored blossoms _____

THE FOLLOWING QUESTIONS CAN BE ANSWERED WITH ONE OR MORE CHECK MARKS.

40. Have you seen the television show called "Plants are for People"?
Yes _____ No _____

41. Have you attended any meetings on the subject of gardening this year?
Yes _____ No _____

42. Have you heard any gardening information this year on the WKAR radio program "Let's Talk Awhile"?
Yes _____ No _____

43. If yes, which of the following did you see?

Garden cleanup and tree fertilizing _____

Planting vegetables and blueberries _____

Buying roses and starting plants indoors _____

Lawn weed control and determining age
of trees _____

Early spring flowers, dusting and
spraying _____

44. What is the most important reason you work in your lawn and garden?

To maintain the value of your house _____

As a hobby or leisure time activity _____

To supplement the family food supply _____

An obligation to keep the place
looking as attractive as others in
the neighborhood _____

Other _____

45. Who does the lawn and garden work at your house?

Man of the house _____

Homemaker _____

Hire it done _____

Other _____

COOPERATIVE EXTENSION WORK

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF OHIO

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

March 14, 1963

Dear Channel 34 Viewer:

The Cooperative Extension Service of Ohio State University provides a wide variety of information of value to homeowners. Typical of this educational service is a current series of television programs entitled "Plants are for People", seen on Thursday evenings at 8:00 P.M.

This series, produced at East Lansing, Michigan, answers many of the questions homeowners have regarding lawns, gardens and ornamental plantings. The program is carried on in the setting of an outdoor garden so that you can observe how a specialist performs many of the tasks with which you, as a homeowner, are faced.

In the interest of improving our service to homeowners and adapting this type of television presentation to your needs we invite you to watch "Plants are for People" starting Thursday, March 14 at 8:00 P.M.

We would like to request your help in evaluating selected programs in the series. You will receive not more than three questionnaires during the period March 10 to May 24. They will be brief and can be returned in an addressed, no postage envelope. Your assistance in completing and returning the forms will be greatly appreciated.

Enclosed is a schedule of the programs for your convenience.

Sincerely yours,



James L. Caldwell
Extension Floriculturist

Sincerely yours,



Frederick I. Jones
Agricultural Editor

PLANTS ARE FOR PEOPLE
WOSU - TV

Thursdays at 8:00 p.m. starting March 14

March 14	<u>It's Planting Time</u>	
	Choosing shrubs for the lawn	Spring care of the lawn
	How to fertilize shade trees & evergreens	How to plant shrubs
March 21	<u>Enjoy Your Vegetable Garden</u>	
	Preparing the Garden for Planting	Fertilizing the garden
	How to grow blueberries at home	Selecting seed varieties
March 28	<u>Roses for Home and Garden</u>	
	How to prune roses	Selecting good roses
	Fertilizer for roses	Planting roses
April 4	<u>Enjoy a Weed-Free Lawn</u>	
	Dandelion control	Grafting
	How to stop crabgrass	
April 11	<u>Spring Flowering Bulbs</u>	
	How to identify bulbs	Following a plan to plant vegetables
	Planting strawberries	Spraying & dusting equipment
April 18	<u>Controlling Insects and Diseases</u>	
	How to do a good job of spraying & dusting	Ground covers
	All-purpose spray and dust material	Hardy boxwood
April 25	<u>Growing Chrysanthemums</u>	
	How to divide chrysanthemums	How to grow tuberous begonias
	How to buy chrysanthemums	Pruning forsythia

May 2 Taking Care of the Established Lawn

Selecting a lawn mower

Safety precautions
in mowing

Adjusting the lawn mower

Taking a soil sample

May 9 Ornamental Shrubs

Following a landscape plan

Choosing mulches

May 16 Outdoor Lighting

Choosing lighting fixtures

Unusual effects from lighting

How to recognize
quality in nursery
stock

Cooperative Extension Work

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF OHIO

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

March 21, 1963

Dear Channel 34 Viewer:

As we indicated in our letter of March 14, we are interested in your opinion of the "Plants are for People" program currently appearing on Channel 34, Thursday evenings at 8:00 p.m. This series of ten programs was produced at East Lansing, Michigan.

Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others in Ohio.

Will you please complete the enclosed brief questionnaire, which, in most cases, only requires checking the most appropriate answer, and return to us in the enclosed postage-free self-addressed envelope before April 18.

Your assistance will be very much appreciated.

Sincerely,



Fred I. Jones
Agricultural Editor

James T. Caldwell
Extension Floriculturist

Enclosure

1. One of the first jobs a rose grower does in the spring is remove the mulch and prune the canes. In your opinion, would it be better to cut all canes back to four or five inches above the ground or cut off only the dead parts of each cane?
☐ Cut off only the dead parts of each cane
☐ Cut all canes to four or five inches above the ground
☐ Doesn't matter
2. Roses can be grown successfully in all parts of the United States. If you were explaining to a neighbor how to keep from having your roses killed by cold weather, would you tell him to fertilize heavily during the fall, use a mulch, or grow roses in a protected location?
☐ Fertilize heavily during the fall
☐ Use a mulch
☐ Grow in a protected location
3. Roses need fertilizer, and a handful of ordinary garden fertilizer in the spring and fall will benefit them. Additional results are possible from the use of fertilizer. If you were to choose between spading manure into the soil, spraying the leaves with a nitrogen solution or making a fall application of potash which would you choose?
☐ Spading manure into the soil
☐ Spraying the leaves with a nitrogen solution
☐ Making a fall application of potash
4. The common types of roses are known as hybrid tea and floribunda. In order to explain the difference between them to a friend would you say hybrid tea roses are improved floribundas, floribundas are climbing roses, or hybrid tea roses have a single bloom compared to clusters of blooms in the floribundas?
☐ Hybrid tea roses are improved floribundas
☐ Floribundas are climbing roses
☐ Hybrid tea roses have single blooms compared to clusters of blooms in the floribunda
5. Rose bushes are sold in many different kinds of packages. If you were choosing from plants in tar paper containers, foil wrapping or without an individual package but with the roots protected, which would you choose?
☐ Tar paper containers
☐ Foil wrapping
☐ Doesn't matter as long as the roots are not allowed to dry out
6. The size of the canes is a measure of how vigorous the rose bush is. Would you rather have a bush with canes about the size of a lead pencil or one with canes no less than half an inch in diameter?
☐ Canes about the size of a lead pencil
☐ Canes not less than half an inch in diameter
☐ The larger the cane the better

7. The number of stems is a measure of quality in a rose bush. Would you rather have one with at least five stems, or one with three to five stems?
- ☐ At least five stems
 - ☐ Three to five stems
 - ☐ It doesn't matter as long as the stems are of sufficient size
8. Under natural conditions, roses remain dormant until warm weather in the spring. If you were advised by your garden store operator to buy sprouted bushes, would you take his advice in order to get earlier blooms or reject it on the basis that sprouted plants would be more easily damaged by cold weather?
- ☐ Take his advice
 - ☐ Reject his advice
 - ☐ Doesn't matter as long as the sprouts aren't broken off
9. Flower and vegetable plants can be stored inside the house. If your neighbor complained that his plants were spindly and weak, would you tell him he used too much fertilizer or that the plants had insufficient light?
- ☐ Too much fertilizer
 - ☐ Insufficient light
 - ☐ Neither
10. The flowering crabapple is a favorite ornamental tree with many homeowners. If you were told that a related tree has the scientific name *choenomeles Lagenaria* would you recognize it as the common crabapple or the flowering quince?
- ☐ Common crabapple
 - ☐ Flowering quince
 - ☐ Neither
11. All improved rose bushes are grafted on to wild rootstock. You can recognize the graft by the scar or enlarged area at the base of the plant. In your opinion should a bush be planted so that this graft union is slightly covered with soil or about an inch above the level of the soil?
- ☐ Slightly covered with soil
 - ☐ About one inch above the level of the soil
 - ☐ Doesn't matter
12. A supply of moisture to the roots of a newly planted rose bush is essential. If you were told by one neighbor to mix damp sphagnum moss with the soil around the roots, and by another to arrange the soil around the base of the plant so water would run toward the plant, with which would you agree?
- ☐ Mix damp sphagnum moss with the soil around the roots
 - ☐ Arrange the soil around the base of the plant so water runs toward the plant
 - ☐ Neither

13. Roses respond to good soil just as any other plant. In your opinion would it be preferable to plant roses in a loose sandy soil or a garden soil?
- ☐ Loose sandy soil
 - ☐ Good garden soil
 - ☐ Either as long as plenty of fertilizer is used
14. Most ornamental plants can be started from cuttings. If you were told that Colorado Blue Spruce cannot be started this way, would you agree or disagree?
- ☐ Agree
 - ☐ Disagree
 - ☐ Don't know
15. Bulbs which remain in the soil all winter provide the earliest spring blooms in gardens. If you wanted to recommend two early blooming bulbs to your neighbors, which of the following would be more appropriate: jonquils and daffodils or scillas and crocus?
- ☐ Jonquils and daffodils
 - ☐ Scilla and crocus
 - ☐ Neither
16. Grafting produces good quality plants in a shorter time but the nurseryman charges more for them. In your opinion which is the more important reason for this higher cost--that only seventy-five to eighty percent of grafts are successful, or that grafted plants are more disease resistant?
- ☐ Only seventy-five to eighty percent of grafts are successful
 - ☐ Grafted plants are more disease resistant
 - ☐ Neither

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Cooperative Extension Work
IN

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

AGRICULTURE AND HOME ECONOMICS
STATE OF OHIO

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

April 2, 1963

Dear Channel 34 Viewer:

As we indicated in our letter of March 14, we are interested in your opinion of the "Plants are for People" program currently appearing on Channel 34, Thursday evenings at 8:00. This series was produced at East Lansing, Michigan.

Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others.

Will you please complete the enclosed questionnaire and return to us in the postage-free, self-addressed envelope at your earliest convenience?

Your assistance is very much appreciated.

Sincerely,

James L. Caldwell

James L. Caldwell
Extension Floriculturist

Enclosure

Fred I. Jones

Fred I. Jones
Agricultural Editor

Cooperative Extension Work

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF OHIO

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

April 2, 1963

Dear Channel 34 Viewer:

The enclosed questionnaire is similar to the one you received about ten days ago. It is an additional step in determining the effectiveness of the "Plants are for People" television program now appearing on Channel 34, Thursday evenings at 8:00 o'clock.

Will you please complete the brief questionnaire and return it to us in the postage-free, self-addressed envelope at your earliest convenience?

Your assistance is very much appreciated.

Sincerely,



James L. Caldwell
Extension Floriculturist



Fred I. Jones
Agricultural Editor

Enclosure

1. One of the first jobs a rose grower does in the spring is remove the mulch and prune the canes. In your opinion, would it be better to cut all canes back to four or five inches above the ground or cut off only the dead parts of each cane?
 - ☐ Cut off only the dead parts of each cane
 - ☐ Cut all canes to four or five inches above the ground
 - ☐ Doesn't matter

2. Roses can be grown successfully in all parts of the United States. If you were explaining to a neighbor how to keep from having your roses killed by cold weather, would you tell him to fertilize heavily during the fall, use a mulch, or grow roses in a protected location?
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6. The size of the canes is a measure of how vigorous the rose bush is. Would you rather have a bush with canes about the size of a lead pencil or one with canes no less than half an inch in diameter?
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7. The number of stems is a measure of quality in a rose bush. Would you rather have one with at least five stems, or one with three to five stems?
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 - ☐ Reject his advice
 - ☐ Doesn't matter as long as the sprouts aren't broken off
9. Flower and vegetable plants can be started inside the house. If your neighbor complained that his plants were spindly and weak, would you tell him he used too much fertilizer or that the plants had insufficient light?
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 - ☐ Scilla and crocus
 - ☐ Neither
16. Grafting produces good quality plants in a shorter time but the nurseryman charges more for them. In your opinion which is the more important reason for this higher cost--that only seventy-five to eighty percent of grafts are successful, or that grafted plants are more disease resistant?
- ☐ Only seventy-five to eighty percent of grafts are successful
 - ☐ Grafted plants are more disease resistant
 - ☐ Neither
17. Were you able to watch the rose program on "Plants are for People" Thursday, March 28?
- ☐ Yes
 - ☐ No
18. If the answer to 17 was Yes, how much would you rate the program in terms of your needs and interests?
- ☐ Too elementary
 - ☐ Helpful
 - ☐ Very helpful
 - ☐ No opinion

Cooperative Extension Work

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF OHIO

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
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AGRICULTURE COOPERATING

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

April 10, 1963

Dear Channel 34 Viewer:

As we indicated in our letter of March 14, we are interested in your opinion of the "Plants are for People" program currently appearing on Channel 34, Thursday evenings at 8:00 p.m. This series of ten programs was produced at East Lansing, Michigan.

Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others in Ohio.

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Your assistance will be very much appreciated.

Sincerely,



Fred I. Jones
Agricultural Editor

James T. Caldwell
Extension Floriculturist

Enclosure

1. Vegetable and flowering plants are often started in hotbeds or coldframes. In your opinion what is the main advantage of using these devices?
☐ To grow healthier plants
☐ To grow earlier vegetables and flowers
☐ Don't know
2. Ground cover is used to cover steep slopes, shady spots or areas where the homeowner does not wish to mow. In your opinion which of the following plants would be more desirable for ground cover --Baltic Ivy, Chewings Fescue, Pachysandra or Ground Cherry?
☐ Ground Cherry and Pachysandra
☐ Chewing Fescue and Baltic Ivy
☐ Baltic Ivy and Pachysandra
3. Tender vegetables like tomatoes could be planted in the garden earlier in the spring if it were not for the cool nights. If your neighbor told you hot caps would keep your tomatoes from being damaged by light frost, would you agree or disagree?
☐ Agree
☐ Disagree
☐ Don't know
4. Many home gardeners are finding black plastic is an effective mulch. In your opinion which of the following best describes the advantages of using black plastic?
☐ It raises the temperature of the soil and controls weeds
☐ It keeps insects away from the plants
☐ Don't know
5. Plants start faster if their roots are not disturbed in transplanting. If your neighbor told you plants grown in peat pots can be planted pot and all would you believe him?
☐ Yes
☐ No
☐ Don't know
6. Some people like to stake their tomatoes; others let them grow on the ground. What in your opinion are the advantages of staking?
☐ Less disease and less sunburn
☐ Earlier tomatoes and better use of space
☐ Don't know
7. Boxwood is prized in many parts of the country as a hedge because it stays green all winter. If you were told it has been difficult to grow in Ohio because of our cold winters, would you agree or disagree?
☐ Agree
☐ Disagree
☐ Don't know

8. Improved varieties of boxwood have been developed in recent years. If you could choose between two plants, one labeled hybrid boxwood and the other *Buxus sempervirens*, which would you choose?
- ☐ Hybrid boxwood
☐ *Buxus sempervirens*
☐ Neither
9. Some gardeners in the past used salt on their asparagus beds. What, in your opinion, was the purpose of this practice?
- ☐ To prevent damage by cutworms
☐ To control weeds
☐ Don't know
10. Daffodils and jonquils are considered by many gardeners as among the easiest flowers to grow. If you were told they can be successfully grown without being touched for 10 years, would you agree or disagree?
- ☐ Agree
☐ Disagree
☐ Don't know
11. Dusting for insects and disease is preferred by many gardeners over spraying. In your opinion what time of day is best for dusting?
- ☐ Mid-morning or mid-afternoon
☐ Early morning or late evening
☐ Doesn't matter as long as the wind isn't blowing
12. Insects and plant diseases must be controlled in a successful garden program. If your garden store operator tried to sell you an "all purpose" spray or dust material, would you buy it or reject it as impractical?
- ☐ Buy it
☐ Reject it
☐ Don't know
13. Many types of spraying equipment are available to the home gardener. If your neighbor told you he had one which operates successfully off the water hose, would you believe him?
- ☐ Yes ☐ No ☐ Don't know
14. Were you able to watch "Plants are for People" on Channel 34 Thursday, April 18?
- ☐ Yes ☐ No
15. If the answer to 14 was yes, how would you rate the program in terms of your needs and interests?
- ☐ Too elementary
☐ Helpful
☐ Very helpful
☐ No opinion

116
Cooperative Extension Work

IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OHIO

AGRICULTURAL
EXTENSION SERVICE

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

COLUMBUS 10, OHIO
April 22, 1963

Dear Channel 34 Viewer:

As we indicated in our letter of March 14, we are interested in your opinion of the "Plants are for People" program currently appearing on Channel 34, Thursday evenings at 8:00. This series was produced at East Lansing, Michigan.

Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others.

Will you please complete the enclosed questionnaire and return to us in the postage-free self-addressed envelope at your earliest convenience.

Your assistance is very much appreciated.

Sincerely,

James L. Caldwell
Extension Floriculturist

Enclosure



Fred I. Jones
Agricultural Editor

1. Vegetable and flowering plants are often started in hotbeds or coldframes. In your opinion what is the main advantage of using these devices?
 - ☐ To grow healthier plants
 - ☐ To grow earlier vegetables and flowers
 - ☐ Don't know
2. Ground cover is used to cover steep slopes, shady spots or areas where the homeowner does not wish to mow. In your opinion which of the following plants would be more desirable for ground cover--Baltic Ivy, Chewings Fescue, Pachysandra or Ground Cherry?
 - ☐ Ground Cherry and Pachysandra
 - ☐ Chewing Fescue and Baltic Ivy
 - ☐ Baltic Ivy and Pachysandra
3. Tender vegetables like tomatoes could be planted in the garden earlier in the spring if it were not for the cool nights. If your neighbor told you hot caps would keep your tomatoes from being damaged by light frost, would you agree or disagree?
 - ☐ Agree
 - ☐ Disagree
 - ☐ Don't know
4. Many home gardeners are finding black plastic is an effective mulch. In your opinion which of the following best describes the advantages of using black plastic?
 - ☐ It raises the temperature of the soil and controls weeds
 - ☐ It keeps insects away from the plants
 - ☐ Don't know
5. Plants start faster if their roots are not disturbed in transplanting. If your neighbor told you plants grown in peat pots can be planted pot and all would you believe him?
 - ☐ Yes
 - ☐ No
 - ☐ Don't know
6. Some people like to stake their tomatoes; others let them grow on the ground. What in your opinion are the advantages of staking?
 - ☐ Less disease and less sunburn
 - ☐ Earlier tomatoes and better use of space
 - ☐ Don't know
7. Boxwood is prized in many parts of the country as a hedge because it stays green all winter. If you were told it has been difficult to grow in Ohio because of our cold winters, would you agree or disagree?
 - ☐ Agree
 - ☐ Disagree
 - ☐ Don't know

8. Improved varieties of boxwood have been developed in recent years. If you could choose between two plants, one labeled hybrid boxwood and the other Buxus sempervirens, which would you choose?
- ☐ Hybrid boxwood
☐ Buxus sempervirens
☐ Neither
9. Some gardeners in the past used salt on their asparagus beds. What, in your opinion, was the purpose of this practice?
- ☐ To prevent damage by cutworms
☐ To control weeds
☐ Don't know
10. Daffodils and jonquils are considered by many gardeners as among the easiest flowers to grow. If you were told they can be successfully grown without being touched for 10 years, would you agree or disagree?
- ☐ Agree ☐ Disagree ☐ Don't know
11. Dusting for insects and disease is preferred by many gardeners over spraying. In your opinion what time of day is best for dusting?
- ☐ Mid-morning or mid-afternoon
☐ Early morning or late evening
☐ Doesn't matter as long as the wind isn't blowing
12. Insects and plant diseases must be controlled in a successful garden program. If your garden store operator tried to sell you an "all purpose" spray or dust material, would you buy it or reject it as impractical?
- ☐ Buy it ☐ Reject it ☐ Don't know
13. Many types of spraying equipment are available to the home gardener. If your neighbor told you he had one which operates successfully off the water hose, would you believe him?
- ☐ Yes ☐ No ☐ Don't know
14. Were you able to watch "Plants are for people" on Channel 34 Thursday, April 18?
- ☐ Yes ☐ No
15. If the answer to 14 was yes, how would you rate the programs in terms of your needs and interests?
- ☐ Too elementary
☐ Helpful
☐ Very helpful
☐ No opinion

Cooperative Extension Work

IN

AGRICULTURE AND HOME ECONOMICS

STATE OF OHIO

AGRICULTURAL
EXTENSION SERVICECOLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

COLUMBUS 10, OHIO

May 1, 1963

Dear Channel 34 Viewer:

As we indicated in our letter of March 14, we are interested in your opinion of the "Plants are for People" program currently appearing on Channel 34, Thursday evenings at 8 o'clock. This series of ten programs was produced at East Lansing, Michigan.

Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others in Ohio.

Will you please complete the enclosed brief questionnaire and return to us in the enclosed postage-free self-addressed envelope, before May 9? In most cases, all that is required is checking the appropriate blank.

Following the show, you will receive a second questionnaire which will be similar to this one. We hope you can take the time to complete and return both questionnaires.

Your assistance is very much appreciated.

Sincerely,



James L. Caldwell
Extension Floriculturist



Fred I. Jones
Agricultural Editor

enclosure

1. Many homeowners are interested in hedge or screen plantings for privacy or to hide unattractive areas in the lawn. If you were asked to suggest a good hedge plant, which of the following would be appropriate?
 - ☐ Multiflora rose
 - ☐ Castor beans
 - ☐ Upright juniper
 - ☐ None of these
2. Equally good lawns are possible by seeding or sodding. In your opinion, which will need cutting first, a seeded lawn or a sodded lawn?
 - ☐ Seeded lawn ☐ Sodded lawn ☐ Don't know
3. A landscape plan starts with the existing buildings and other permanent features and suggests a pattern of plantings which will result in the maximum of beauty and utility in the lot. In your opinion is a landscape plan more important on a large lot or small lot?
 - ☐ Large lot ☐ Small lot ☐ No opinion
4. Gladiolus are relatively easy to grow and their blooms can be enjoyed over much of the summer season. If you were asked what to buy at the garden store to grow gladiolus, would you say bulbs, corms or tubers?
 - ☐ Bulbs ☐ Corms ☐ Tubers ☐ None of these
5. Gladiolus vary in price greatly depending on the size, the larger ones being more expensive. If your friend asked you which to buy would you say big ones because they produce bigger blooms or small ones because they bloom quicker?
 - ☐ Bigger ones because they produce bigger blooms
 - ☐ Smaller ones because they bloom quicker
 - ☐ Buy the cheaper ones
6. Dahlias are warm weather flowers which grow from tubers. These tubers can be divided in the spring to increase the number of plants. What precautions, in your opinion, should be followed in dividing the tubers?
 - ☐ Be careful not to bruise them
 - ☐ Do not use a knife but break the tubers apart
 - ☐ Make sure there is at least one bud per tuber
7. Dahlia tubers will dry out over winter if special precautions are not followed. If you were advising a friend as to how to prevent drying out, which of the following would be most appropriate?
 - ☐ Coating with paraffin or storing in sawdust
 - ☐ Storing outdoors where the humidity is higher
 - ☐ Storing in a cool part of the basement

8. Some dahlias grow as tall as six feet or more and need to be staked. What, in your opinion, is the purpose of setting the stake before planting the tuber?
- ☐ To mark the place where the dahlia will come up
 - ☐ To prevent people from stepping on the young plant and breaking it
 - ☐ In order to locate the tuber so the plant will come up close to the stake to facilitate tying.
9. Dahlia tubers should be planted about eight inches deep. In your opinion, what is the best way to fill the hole?
- ☐ Add water then fill the hole completely with soil
 - ☐ Fill the hole about four inches and add soil as the plant grows
 - ☐ Fill the hole half way with sand then complete filling it with soil
10. Mulch is used by gardeners to preserve moisture in the soil, keep the temperature of the soil lower in summer, and to control weeds. In your opinion, which of the following best states the hazards of using mulches?
- ☐ They tend to turn the soil acid
 - ☐ In the process of decaying they take nitrogen away from plants
 - ☐ They encourage insect activity
 - ☐ None of these
11. Buckwheat hulls make a good mulch for flowers and ornamentals, but it has at least one major disadvantage. In your opinion, which of the following best describes that disadvantage?
- ☐ Buckwheat hulls have a disagreeable odor
 - ☐ They are light in weight and blow away easily
 - ☐ Don't know
12. Common names of shrubs vary from one locality to another while scientific names are the same the world over. If you read the words *Cornus florida* attached to a plant, what would the common name be?
- ☐ Flowering crabapple
 - ☐ Flowering quince
 - ☐ Flowering dogwood
13. *Vinca* is the scientific name for a popular ground cover plant. Which of the following in your opinion, are the common names most often used for vinca?
- ☐ Periwinkle and trefoil
 - ☐ Periwinkle and myrtle
 - ☐ Myrtle and ivy
 - ☐ None of these

14. Lawns respond well to regular applications of fertilizer. In your opinion, which of the three most common elements used in fertilizer is most important on grass, nitrogen, phosphorus or potash.
- ☐ Nitrogen
 - ☐ Phosphorous
 - ☐ Potash
 - ☐ None of these
15. Barberry is a common ornamental plant often used as a border or hedge. If you were told you could buy a dwarf red barberry that would grow only 12 to 15 inches in height would you believe it or not?
- ☐ Believe it
 - ☐ Not believe it
 - ☐ Don't know

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Cooperative Extension Work
IN

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

AGRICULTURE AND HOME ECONOMICS
STATE OF OHIO

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

May 13, 1963

Dear Channel 34 Viewer:

The enclosed questionnaire is similar to the one you received about ten days ago. It is an additional step in determining the effectiveness of the "Plants are for People" television program now appearing on Channel 34, Thursday evenings at 8 o'clock.

Will you please complete the brief questionnaire and return it to us in the postage-free self-addressed envelope at your earliest convenience?

Your assistance is very much appreciated.

Sincerely,

James L. Caldwell

James L. Caldwell
Extension Floriculturist

Fred I. Jones

Fred I. Jones
Agricultural Editor

enclosure

COLLEGE OF AGRICULTURE OF THE
OHIO STATE UNIVERSITY AND THE
UNITED STATES DEPARTMENT OF
AGRICULTURE COOPERATING

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Cooperative Extension Work
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OHIO

AGRICULTURAL
EXTENSION SERVICE

COLUMBUS 10, OHIO

May 13, 1963

Dear Channel 34 Viewer:

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Your assistance in evaluating the series will help us in determining whether television is an effective means of providing horticultural information to homeowners and others.

Will you please complete the enclosed questionnaire and return to us in the postage-free self-addressed envelope at your earliest convenience?

Your assistance is very much appreciated.

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James L. Caldwell
Extension Floriculturist

Fred I. Jones
Fred I. Jones
Agricultural Editor

enclosure

1. Many homeowners are interested in hedge or screen plantings for privacy or to hide unattractive areas in the lawn. If you were asked to suggest a good hedge plant, which of the following would be appropriate?
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☐ Upright juniper
☐ None of these
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3. A landscape plan starts with the existing buildings and other permanent features and suggests a pattern of plantings which will result in the maximum of beauty and utility in the lot. In your opinion is a landscape plan more important on a large lot or small lot?
☐ Large lot ☐ Small lot ☐ No opinion
4. Gladiolus are relatively easy to grow and their blooms can be enjoyed over much of the summer season. If you were asked what to buy at the garden store to grow gladiolus, would you say bulbs, corms or tubers?
☐ Bulbs ☐ Corms ☐ Tubers ☐ None of these
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13. *Vinca* is the scientific name for a popular ground cover plant. Which of the following in your opinion, are the common names most often used for *vinca*?
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 - ☐ Periwinkle and myrtle
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14. Lawns respond well to regular applications of fertilizer. In your opinion, which of the three most common elements used in fertilizer is most important on grass, nitrogen, phosphorus or potash.
- ☐ Nitrogen
 - ☐ Phosphorous
 - ☐ Potash
 - ☐ None of these
15. Barberry is a common ornamental plant often used as a border or hedge. If you were told you could buy a dwarf red barberry that would grow only 12 to 15 inches in height would you believe it or not?
- ☐ Believe it
 - ☐ Not believe it
 - ☐ Don't know
16. Were you able to watch "Plants are for People" on Channel 34, Thursday, May 9?
- ☐ Yes ☐ No
17. If the answer to 16 was yes, how would you rate the program in terms of your needs and interest?
- ☐ Too elementary
 - ☐ Helpful
 - ☐ Very helpful
 - ☐ No opinion

PLEASE COMPLETE THE FOLLOWING QUESTIONS, MOST OF WHICH REQUIRE ONLY ONE CHECK MARK.

1. How long have you lived at this address?
☐ Less than one year
☐ One to five years
☐ Over five years
2. Which of the following best describes your place of residence?
☐ Single family dwelling owned by the occupant
☐ Single family dwelling rented by the occupant
☐ Duplex or apartment owned by the occupant
3. Please check the highest grade completed in school (head of the household).
☐ Eighth grade
☐ 1 to 3 years of high school
☐ 4 years of high school
☐ 1 to 3 years of college
☐ 4 years of college
☐ More: _____
4. Please indicate which of the following is nearest your income.
☐ Less than \$2,999
☐ \$3,000 to \$5,999
☐ \$6,000 to \$8,999
☐ \$9,000 to \$11,999
☐ More than \$12,000
5. Who does most of the lawn and garden work at your house?
☐ The man of the house
☐ The homemaker
☐ Hired help
☐ Children
☐ Other: _____
6. How much do you estimate you spent on your lawn and garden last year?
☐ Under \$50
☐ \$50 to \$200
☐ Over \$200
7. Please rank the following in terms of your reasons for taking care of your lawn and grounds.
☐ To maintain the value of the house
☐ As a hobby or leisure time activity
☐ To supplement the food supply
☐ Social obligation to keep the place looking presentable
☐ Other: _____

8. Which of the following were part of your lawn and gardening activities in 1962?
- ☐ Lawn
 - ☐ Shrubs
 - ☐ Flowers
 - ☐ Vegetables
 - ☐ Fruit trees
 - ☐ Other: _____
9. Please rank the following activities in terms of the time you spend with each.
- ☐ Reading (non gardening information)
 - ☐ Gardening and reading about gardening
 - ☐ Participation in sports such as golf
 - ☐ Listening to, watching or attending sports events
 - ☐ Listening to, watching or attending music, art, or literature programs
 - ☐ Other hobbies (except gardening) _____
10. Do you belong to a garden club?
- ☐ Yes ☐ No
11. Which of the following magazines containing gardening and lawn information do you receive?
- ☐ Better Homes and Gardens
 - ☐ American Home
 - ☐ Ohio Farmer
 - ☐ House Beautiful
 - ☐ House and Garden
 - ☐ Other: _____
12. To your knowledge have you made use of information, bulletins, radio, TV or newsletters from the Cooperative Extension Service or Ohio State University in your lawn care and gardening activities?
- ☐ Yes ☐ No
13. Please rank the following in terms of where you get helpful information on lawns and gardens.
- ☐ Neighbors, friends and relatives
 - ☐ Television
 - ☐ Hardware or garden store
 - ☐ Bulletins and pamphlets
 - ☐ Magazines
 - ☐ Newspapers
 - ☐ Radio
 - ☐ Other: _____

14. Do you have a television set in working order?

☐ Yes

☐ No

If the answer is yes, can you receive Channel 34 (Ohio State University) on your television set?

☐ Yes

☐ No

15. If you can receive Channel 34, please check your viewing habits.

☐ Have not watched a program during the past month

☐ Watched one to five programs in the past month

☐ Watched five to ten programs in the past month

☐ Watched more than ten programs in the past month



INNER CIRCLE WOSU-TV STANDARD CONVERTER VIEWING AREA
 OUTER CIRCLE WOSU-TV LONG-RANGE CONVERTER VIEWING AREA
 LINE INDICATES PROPOSED OHIO TV NETWORK

WKKO-TV
Fetser Broadcasting Company
590 West Maple Street
Kalamazoo, Michigan

Mr. Robert P. Worrall
Extension Television Editor
Michigan State University
East Lansing, Michigan

Dear Bob:

With one or two minor exceptions the "Plants Are For People" program has been quite successful, as far as we are concerned. However, we have had no local action to it to speak of, either on the part of local nurserymen or the audience. Sorry that I can't give you a better report.

We would be happy to continue a Michigan State University program in this time period. Please let us know if we may expect a program from you in time for a July 2 scheduling.

Best regards.

Cordially,

Charles T. Lynch
Program Director

CTL:11

WJRT Channel 12 Flint
2302 Lapeer Road
Flint 3, Michigan
June 21, 1960

Mr. Robert P. Worrall
Extension Television Editor
Michigan State University
East Lansing, Michigan

Dear Bob:

Thank you for your letter of June 20 advising us of the decision to suspend production of "Plants Are For People." This certainly seems logical in view of the many factors involved. I am sure that if thought is given to improving the quality, it can only result in a more interesting series for fall, and certainly at a time when there will be another peak of viewer interest in lawn and garden care.

We are, at present, involved in scheduling plans for this coming fall and while a firm commitment is impossible at this juncture, I can at least assure you of our interest in arranging a suitable spot on our schedule for such a fall series to start possibly around mid-September to early-October.

I should like to assure you again, that in my opinion, this type of programming, with the emphasis on information, is making the best possible use of the University's television facilities on a cooperative basis.

Please convey my regards to Don Watson and we will look forward to some word from you around the first of September regarding resumption of this series.

Sincerely,

F. C. Mitchell

FCM:bb

WTBK-TV Storer Broadcasting Company
 Detroit 2, Michigan
 July 6, 1961

Mr. Robert P. Worrall
 Extension Television Editor
 Cooperative Extension Service
 Michigan State University
 East Lansing, Michigan

Mr. Donald P. Watson, Professor
 Ornamental Horticulture
 Cooperative Extension Service
 Michigan State University
 East Lansing, Michigan

Gentlemen:

The head on this letter is unintentionally flavored with formality. Actually, the purpose was obviously to combine both your names.

I have been very slow in writing this letter of appreciation to you both for what we consider to have been an excellent program series. "Plants Are For People" was very professionally done, and proved to be of interest to many Channel 2 viewers. Most certainly I was disappointed that you found it impossible to continue the series during the summer. Reasons were most certainly understandable. We are looking forward to resuming the series when you make this possible.

I know of no other garden series I have seen anywhere that made as good television material as "Plants Are For People." All of the credit goes to you for both preparation and planning as well as on-the-air performance. It was not only educational and thus informative, but was also entertaining and very palatable to digest. Certainly in any future programs, I believe it most important that you try to retain these same qualities. Should you decide to open the way for credits to be given as an official study class, it would be best that you keep in mind the majority of persons not taking the "course for credit." I am sure you are aware of the many residual benefits gained from a program such as "Plants Are For People." Not the least of these is, of course, the excellent public relations for Michigan State University.

On behalf of the station, please accept my thanks to you both.

Cordially yours,

Ralph Hansen, Program Director

RH:bt

cc: Dr. John Hannah, President
 Michigan State University

Table 20. Distribution of answers after program 1.

Question No.	Response No.	Group 1 N-64			Group 2 N-34		
		No.	Percent of those Answering Question	Percent of those Responding	No.	Percent of those Answering Question	Percent of those Responding
1	1	21	36.8	51.6	11	32.4	64.7
	2*	33	57.9		22	64.7	
	3	3	5.3		1	2.9	
2	1	4	7.2	76.5	1	3.2	73.5
	2*	49	87.5		25	90.4	
	3	3	5.3		2	6.4	
3	1	27	50.9	29.6	24	70.6	14.7
	2*	19	35.8		5	14.7	
	3	7	13.3		5	14.7	
4	1	5	9.1	75.0	4	12.5	73.5
	2	2	3.6		3	9.3	
	3*	48	87.3		25	78.2	
5	1	11	18.9	70.3	2	5.8	67.6
	2	2	3.5		9	26.5	
	3*	45	77.6		23	67.7	
6	1	18	32.2	43.7	13	44.8	35.2
	2*	58	50.0		12	41.4	
	3	10	17.8		4	13.8	
7	1	12	21.1	54.6	8	24.2	55.8
	2*	35	61.4		19	57.6	
	3	10	17.5		6	18.2	
8	1	10	38.4	12.5	6	18.2	23.5
	2*	8	30.8		8	24.2	
	3	8	30.8		19	57.6	
9	1	4	7.2	65.6	3	8.4	79.4
	2*	42	76.4		27	75.0	
	3	9	16.4		6	16.6	
10	1	3	6.4	35.9	1	5.5	11.7
	2*	23	48.9		4	22.2	
	3	21	44.7		13	72.3	

Table 20 (contd.)

Question No.	Response No.	Group 1 N-64		Percent of those Responding	Group 2 N-34		Percent of those Responding
		No.	Percent of those Answering Question		No.	Percent of those Answering Question	
11	1	21	38.2	46.8	12	38.8	47.0
	2*	30	54.5		16	51.6	
	3	4	7.3		3	9.6	
12	1	14	25.9	45.3	11	32.4	52.9
	2*	29	53.7		18	52.9	
	3	11	20.4		5	14.7	
13	1	10	18.1	59.3	5	14.3	79.4
	2*	38	69.1		27	77.2	
	3	7	12.8		3	8.5	
14	1*	23	42.6	35.9	9	28.1	26.4
	2	9	16.6		9	28.1	
	3	22	40.8		14	43.8	
15	1	11	19.7	68.7	11	32.4	64.7
	2*	44	78.5		22	64.7	
	3	1	1.8		1	2.9	
16	1*	24	41.3	37.5	16	57.2	47.0
	2	16	27.6		8	28.6	
	3	18	31.1		4	14.2	

*Correct answer.

Table 21. Distribution of answers after program 2.

Question No.	Response No.	Group 3 N-84		Percent of those Responding	Group 4 N-50		Percent of those Responding
		No.	Percent of those Answering Question		No.	Percent of those Answering Question	
1	1	3	3.7	90.4	5	11.9	72.0
	2*	76	95.1		36	85.7	
	3	1	1.2		1	2.4	
2	1	3	4.7	58.3	1	3.8	34.0
	2	11	17.5		9	33.3	
	3*	49	77.8		17	62.9	
3	1*	61	77.3	72.6	17	38.6	34.0
	2	3	5.0		5	11.4	
	3	14	17.7		22	50.0	
4	1*	60	74.1	71.4	20	45.5	40.0
	2	1	1.2		0	0.0	
	3	20	24.7		24	54.5	
5	1*	73	90.2	86.9	41	91.1	82.0
	2	4	4.9		1	2.2	
	3	4	4.9		3	6.6	
6	1	15	19.0	71.4	10	23.3	58.0
	2*	60	76.0		29	67.4	
	3	4	5.0		4	9.3	
7	1*	37	46.8	44.0	13	29.5	26.0
	2	13	16.4		8	18.2	
	3	29	36.8		23	52.3	
8	1	18	45.0	25.0	14	56.0	6.0
	2*	20	34.4		3	12.0	
	3	9	19.6		8	32.0	
9	1	12	15.2	48.8	1	2.3	18.0
	2*	41	51.9		9	21.5	
	3	26	32.9		32	76.2	
10	1*	58	71.7	69.0	27	61.3	54.0
	2	17	20.9		11	25.0	
	3	6	7.4		6	13.7	

Table 21. (contd.)

Question No.	Response No.	Group 3 N-84		Group 4 N-50	
		No.	Percent of those Answering Question	No.	Percent of those Answering Question
11	1	4	9.0	0	0.0
	2*	53	67.9	27	65.9
	3	18	23.1	14	34.1
12	1*	37	46.3	17	37.8
	2	23	42.5	15	33.3
	3	9	11.2	13	28.7
13	1*	60	75.1	32	72.7
	2	9	11.2	5	11.4
	3	11	13.7	7	15.9

* Correct answer.

Table 22. Distribution of answers after program 3.

Question No.	Response No.	Group 5 N-52			Group 6 N-51		
		No.	Percent of those Answering Question	Percent of those Responding	No.	Percent of those Answering Question	Percent of those Responding
1	1	11	24.4		11	24.5	
	2	1	2.2		1	2.3	
	3*	27	60.0	51.9	13	28.8	25.4
	4	6	13.4		20	44.4	
2	1	7	14.8		8	16.6	
	2*	32	68.1	61.5	31	64.6	60.7
	3	8	17.1		9	18.8	
3	1	4	10.6		8	19.0	
	2*	25	65.7	48.0	27	64.3	52.9
	3	9	23.7		7	16.7	
4	1	13	26.5		28	62.3	
	2*	27	55.1	51.9	15	33.3	29.4
	3	3	6.1		1	2.2	
	4	6	12.3		1	2.2	
5	1*	31	75.6	59.6	28	80.0	54.9
	2	4	9.7		2	5.8	
	3	6	14.7		5	14.2	
6	1	8	20.0		3	8.4	
	2	6	15.0		2	5.5	
	3*	26	65.0	50.0	31	86.1	60.7
7	1*	17	40.4	32.6	6	16.2	13.7
	2	1	2.4		0	0.0	
	3	24	57.2		31	83.8	
8	1	6	13.3		1	2.9	
	2	7	15.5		11	32.3	
	3*	32	71.2	61.5	22	64.8	52.9
9	1	10	22.7		17	47.2	
	2*	18	40.9	34.6	13	36.2	25.4
	3	16	36.4		6	16.6	

Table 22. (contd.)

Question No.	Response No.	Group 5 N-52		Percent of those Responding	Group 6 N-51		Percent of those Responding
		No.	Percent of those Answering Question		No.	Percent of those Answering Question	
10	1	5	12.5	32.6	5	13.2	39.2
	2*	17	42.5		20	52.7	
	3	7	17.5		6	15.7	
	4	11	27.5		7	18.4	
11	1	1	2.3	48.0	0	0.0	37.2
	2*	25	58.2		19	44.2	
	3	18	39.5		24	55.8	
12	1	2	5.2	42.3	4	17.3	53.1
	2	15	38.4		7	30.5	
	3*	22	56.4		12	52.2	
13	1	2	4.8	48.0	1	4.0	27.4
	2*	25	59.5		14	56.0	
	3	10	23.8		6	24.0	
	4	5	11.9		4	16.0	
14	1*	38	86.4	73.0	31	86.2	60.7
	2	1	2.3		3	8.4	
	3	0	0.0		1	2.7	
	4	5	11.3		1	2.7	
15	1*	22	50.0	42.3	17	40.5	33.3
	2	1	2.3		11	26.2	
	3	21	47.7		14	33.3	

*Correct answer.

Table 23. How those in group 1 who returned questionnaires both before and after program 1 answered before viewing the program.

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1	1	5	33.3	12	38.7	1	16.7
	2*	7	46.7	17	54.8	3	50.0
	3	0	0.0	0	0.0	0	0.0
	Didn't answer	3	20.0	2	6.5	2	33.3
	Total	15	100.0	31	100.0	6	100.0
2	1	0	0.0	3	9.7	0	0.0
	2*	12	80.0	23	74.2	3	50.0
	3	0	0.0	1	3.2	1	16.7
	Didn't answer	3	20.0	4	12.9	2	33.3
	Total	15	100.0	31	100.0	6	100.0
3	1	7	46.6	17	54.7	3	50.0
	2*	4	26.7	2	6.5	1	16.7
	3	0	0.0	6	19.4	0	0.0
	Didn't answer	4	26.7	6	19.4	2	33.3
	Total	15	100.0	31	100.0	6	100.0
4	1	1	6.7	6	19.4	1	16.7
	2	1	6.7	0	0.0	0	0.0
	3*	9	59.9	18	58.1	3	50.0
	Didn't answer	4	26.7	7	22.5	2	33.3
	Total	15	100.0	31	100.0	6	100.0
5	1	4	26.7	4	12.9	0	0.0
	2	1	6.7	4	12.9	0	0.0
	3*	6	39.9	21	67.7	4	66.7
	Didn't answer	4	26.7	2	6.5	2	33.3
	Total	15	100.0	31	100.0	6	100.0
6	1	4	26.7	9	29.0	1	16.7
	2*	4	26.7	11	35.5	2	33.3
	3	3	19.9	7	22.6	0	0.0
	Didn't answer	4	26.7	4	12.9	3	50.0
	Total	15	100.0	31	100.0	6	100.0

Table 23. (contd.)

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
7	1	4	26.7	7	22.6	3	50.0
	2*	6	40.0	14	45.2	0	0.0
	3	1	6.6	8	25.8	0	0.0
	Didn't answer	4	26.7	2	6.4	3	50.0
	Total	15	100.0	31	100.0	6	100.0
8	1	3	20.0	7	22.6	1	16.7
	2*	7	46.7	17	54.8	3	50.0
	3	2	13.3	3	9.7	0	0.0
	Didn't answer	3	20.0	4	12.9	2	33.3
	Total	15	100.0	31	100.0	6	100.0
9	1	0	0.0	1	3.2	0	0.0
	2*	7	46.6	19	61.3	3	50.0
	3	4	26.7	5	16.1	0	0.0
	Didn't answer	4	26.7	6	19.4	3	50.0
	Total	15	100.0	31	100.0	6	100.0
10	1	1	6.7	2	6.5	1	16.7
	2*	3	20.0	4	12.9	0	0.0
	3	2	13.3	12	38.7	2	33.3
	Didn't answer	9	60.0	13	41.9	3	50.0
	Total	15	100.0	31	100.0	6	100.0
11	1	2	13.3	12	38.7	2	33.3
	2*	8	53.3	11	35.5	1	16.7
	3	1	6.7	3	9.7	0	0.0
	Didn't answer	4	26.7	5	16.1	3	50.0
	Total	15	100.0	31	100.0	6	100.0
12	1	4	26.7	14	45.2	2	33.3
	2*	5	33.3	7	22.6	2	33.3
	3	2	13.3	5	16.1	0	0.0
	Didn't answer	4	26.7	5	16.1	2	33.3
	Total	15	100.0	31	100.0	6	99.9
13	1	0	0.0	5	16.1	0	0.0
	2*	8	53.3	20	64.5	4	66.7
	3	3	20.0	4	12.9	0	0.0
	Didn't answer	4	26.7	2	6.5	2	33.3
	Total	15	100.0	31	100.0	6	100.0

Table 23. (contd.)

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
14	1	2	13.3	4	12.9	0	0.0
	2	1	6.7	9	29.0	1	16.7
	3*	8	53.3	15	48.4	3	50.0
	Didn't answer	4	26.7	3	9.7	2	33.3
	Total	15	100.0	31	100.0	6	100.0
15	1	1	6.7	5	16.1	0	0.0
	2*	9	60.0	23	74.2	4	66.7
	3	1	6.6	0	0.0	0	0.0
	Didn't answer	4	26.7	3	9.7	2	33.3
	Total	15	100.0	31	100.0	6	100.0
16	1*	6	40.0	10	32.3	2	33.3
	2	2	13.3	10	32.3	1	16.7
	3	2	13.3	5	16.0	0	0.0
	Didn't answer	5	33.4	6	19.4	3	50.0
	Total	15	100.0	31	100.0	6	100.0

*Correct answer.

Table 24. How those in group 3 who returned questionnaires both before and after program 2 answered before viewing the program.

Question Number	Response Number	Viewed N-32		Didn't View N-31		Didn't Say N-4	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1	1	3	9.3	1	3.2	0	0.0
	2*	25	78.1	26	83.9	3	75.0
	3	2	6.3	3	9.7	0	0.0
	Didn't answer	2	6.3	1	3.2	1	25.0
	Total	32	100.0	31	100.0	4	100.0
2	1	1	3.1	1	3.2	0	0.0
	2	3	9.4	5	16.1	0	0.0
	3*	16	50.0	12	38.7	1	25.0
	Didn't answer	12	37.5	13	42.0	3	75.0
	Total	32	100.0	31	100.0	4	100.0
3	1*	14	43.8	16	51.6	1	25.0
	2	7	21.8	3	9.7	0	0.0
	3	11	34.4	11	35.5	2	75.0
	Didn't answer	0	0.0	1	3.2	1	25.0
	Total	32	100.0	31	100.0	4	100.0
4	1*	21	65.6	15	48.4	2	50.0
	2	0	0.0	0	0.0	0	0.0
	3	11	34.4	13	41.9	1	25.0
	Didn't answer	0	0.0	3	9.7	1	25.0
	Total	32	100.0	31	100.0	4	100.0
5	1*	28	87.5	25	80.6	0	00.0
	2	1	3.1	4	12.9	2	50.0
	3	3	9.4	2	6.5	1	25.0
	Didn't answer	0	0.0	0	0.0	1	25.0
	Total	32	100.0	31	100.0	4	100.0
6	1	6	18.8	9	29.0	1	25.0
	2*	22	68.8	16	51.6	0	0.0
	3	2	6.2	3	9.7	2	75.0
	Didn't answer	2	6.2	3	9.7	1	25.0
	Total	32	100.0	31	100.0	4	100.0
7	1*	11	34.4	10	32.3	0	0.0
	2	3	9.3	4	12.9	1	25.0
	3	18	56.3	16	51.6	0	0.0
	Didn't answer	0	0.0	1	3.2	3	75.0
	Total	32	100.0	31	100.0	4	100.0

Table 24. (contd.)

Question Number	Response Number	Viewed N-32		Didn't View N-31		Didn't Say N-4	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
8	1	4	12.5	10	32.3	0	0.0
	2*	5	15.6	2	6.4	1	25.0
	3	8	25.0	3	9.7	0	0.0
	Didn't answer	15	46.9	16	51.6	3	75.0
	Total	32	100.0	31	100.0	4	100.0
9	1	4	12.4	3	9.7	0	0.0
	2*	10	31.3	7	22.5	1	25.0
	3	18	56.3	18	58.1	2	50.0
	Didn't answer	0	0.0	3	9.7	1	25.0
	Total	32	100.0	31	100.0	4	100.0
10	1*	17	53.1	15	48.4	2	50.0
	2	10	31.3	8	25.8	0	0.0
	3	5	15.6	6	19.4	1	25.0
	Didn't answer	0	0.0	2	6.4	1	25.0
	Total	32	100.0	31	100.0	4	100.0
11	1	5	15.6	5	16.1	0	0.0
	2*	19	59.4	15	48.4	2	50.0
	3	6	18.8	7	22.6	1	25.0
	Didn't answer	2	6.2	4	12.9	1	25.0
	Total	32	100.0	31	100.0	4	100.0
12	1*	12	37.5	9	29.0	0	0.0
	2	17	53.1	16	51.6	1	25.0
	3	3	9.4	4	12.9	1	25.0
	Didn't answer	0	0.0	2	6.5	2	50.0
	Total	32	100.0	31	100.0	4	100.0
13	1*	22	68.8	18	58.1	3	75.0
	2	5	15.6	4	12.9	0	0.0
	3	5	15.6	8	25.8	0	0.0
	Didn't answer	0	0.0	1	3.2	1	25.0
	Total	32	100.0	31	100.0	4	100.0

*Correct answer.

Table 25. How those in group 5 who returned questionnaires both before and after program 3 answered before viewing the program.

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
1	1	4	21.1	5	22.7
	2	1	5.3	1	4.6
	3*	2	10.5	5	22.7
	4	10	52.6	11	50.0
	Didn't answer	2	10.5	0	0.0
	Total	19	100.0	22	100.0
2	1	3	15.8	4	18.2
	2*	13	68.4	11	50.0
	3	2	10.5	7	31.8
	Didn't answer	1	5.3	0	0.0
	Total	19	100.0	22	100.0
3	1	4	21.1	6	27.3
	2*	10	52.6	7	31.8
	3	3	15.8	7	31.8
	Didn't answer	2	10.5	2	9.1
	Total	19	100.0	22	100.0
4	1	12	63.2	11	50.0
	2*	6	31.6	7	31.9
	3	0	0.0	1	4.5
	Didn't answer	1	5.2	0	0.0
	Total	19	100.0	22	100.0
5	1*	12	63.2	13	59.1
	2	4	21.1	2	9.1
	3	2	10.5	5	22.7
	Didn't answer	1	5.2	2	9.1
	Total	19	100.0	22	100.0
6	1	1	5.3	1	4.5
	2	2	10.5	6	27.3
	3*	15	78.9	13	59.1
	Didn't answer	1	5.3	2	9.1
	Total	19	100.0	22	100.0

Table 25. (contd.)

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
7	1*	3	15.7	1	4.5
	2	0	0.0	0	0.0
	3	12	63.2	18	81.9
	Didn't answer	4	21.1	3	13.6
	Total	19	100.0	22	100.0
8	1	0	0.0	2	9.1
	2	4	21.1	4	18.2
	3*	13	68.4	13	59.1
	Didn't answer	2	10.5	3	13.6
	Total	19	100.0	22	100.0
9	1	7	36.8	9	40.9
	2*	7	36.8	4	18.2
	3	4	21.1	4	18.2
	Didn't answer	1	5.3	5	22.7
	Total	19	100.0	22	100.0
10	1	2	10.5	1	4.5
	2*	6	31.6	3	13.6
	3	4	21.1	2	9.1
	4	5	26.3	10	45.5
	Didn't answer	2	10.5	6	27.3
	Total	19	100.0	22	100.0
11	1	0	0.0	0	0.0
	2*	9	47.4	5	22.7
	3	8	42.1	15	68.2
	Didn't answer	2	10.5	2	9.1
	Total	19	100.0	22	100.0
12	1	4	21.1	0	0.0
	2	2	10.5	4	18.2
	3*	7	36.8	8	36.3
	Didn't answer	6	31.6	10	45.5
	Total	19	100.0	22	100.0
13	1	2	10.5	2	9.1
	2*	8	42.1	5	22.7
	3	3	15.8	4	18.2
	4	0	0.0	0	0.0
	Didn't answer	6	31.6	11	50.0
	Total	19	100.0	22	100.0

Table 25. (contd.)

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
14	1*	16	84.2	14	63.7
	2	0	0.0	1	4.5
	3	0	0.0	0	0.0
	4	1	5.3	1	4.5
	Didn't answer	2	10.5	6	27.3
	Total	19	100.0	22	100.0
15	1*	8	42.1	7	31.8
	2	4	21.0	0	0.0
	3	6	31.6	12	54.5
	Didn't answer	1	5.3	3	13.7
	Total	19	100.0	22	100.0

* Correct answer.

Table 26. How those in group 1 who returned questionnaires both before and after program 1 answered after viewing the program.

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1	1	5	33.3	13	41.9	0	0.0
	2*	9	60.0	16	51.7	2	33.3
	3	1	6.7	1	3.2	0	0.0
	Didn't answer	0	0.0	1	3.2	4	66.7
	Total	15	100.0	31	100.0	6	100.0
2	1	0	0.0	4	12.9	0	0.0
	2*	15	100.0	24	77.4	2	33.3
	3	0	0.0	1	3.2	0	0.0
	Didn't answer	0	0.0	2	6.5	4	66.7
	Total	15	100.0	31	100.0	6	100.0
3	1	4	26.7	16	51.6	1	16.7
	2*	11	73.3	6	19.4	0	0.0
	3	0	0.0	6	19.4	0	0.0
	Didn't answer	0	0.0	3	9.6	5	83.3
	Total	15	100.0	31	100.0	6	100.0
4	1	0	0.0	4	12.9	0	0.0
	2	0	0.0	1	3.2	0	0.0
	3*	15	100.0	22	71.0	2	33.3
	Didn't answer	0	0.0	4	12.9	4	66.7
	Total	15	100.0	31	100.0	6	100.0
5	1	3	20.0	5	16.1	0	0.0
	2	0	0.0	0	0.0	1	16.7
	3*	12	80.0	25	80.7	1	16.7
	Didn't answer	0	0.0	1	3.2	4	66.6
	Total	15	100.0	31	100.0	6	100.0
6	1	4	26.7	11	35.5	0	0.0
	2*	18	53.3	14	45.2	2	33.3
	3	2	13.3	5	16.1	0	0.0
	Didn't answer	1	6.7	1	3.2	4	66.7
	Total	15	100.0	31	100.0	6	100.0
7	1	2	13.3	4	12.9	0	0.0
	2*	12	80.0	17	54.9	2	33.3
	3	1	6.7	9	29.0	0	0.0
	Didn't answer	0	0.0	1	3.2	4	66.7
	Total	15	100.0	31	100.0	6	100.0

Table 26. (contd.)

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
8	1	2	13.3	4	12.9	0	0.0
	2*	12	80.0	17	54.9	2	33.3
	3	1	6.7	9	29.0	0	0.0
	Didn't answer	0	0.0	1	3.2	4	66.7
	Total	15	100.0	31	100.0	6	100.0
9	1	1	6.7	2	6.4	0	0.0
	2*	14	93.3	20	64.5	1	16.7
	3	0	0.0	6	19.4	1	16.7
	Didn't answer	0	0.0	3	9.7	4	66.6
	Total	15	100.0	31	100.0	6	100.0
10	1	1	6.7	1	3.2	0	0.0
	2*	10	66.6	11	35.5	0	0.0
	3	1	6.7	13	41.9	1	16.7
	Didn't answer	3	20.0	6	19.4	5	83.3
	Total	15	100.0	31	100.0	6	100.0
11	1	3	20.0	12	38.7	1	16.7
	2*	9	60.0	16	51.6	0	0.0
	3	3	20.0	1	3.2	0	0.0
	Didn't answer	0	0.0	2	6.5	5	83.3
	Total	15	100.0	31	100.0	6	100.0
12	1	0	0.0	11	35.5	1	16.7
	2*	13	86.6	12	38.7	0	0.0
	3	1	6.7	6	19.4	0	0.0
	Didn't answer	1	6.7	2	6.4	5	83.3
	Total	15	100.0	31	100.0	6	100.0
13	1	2	13.3	8	25.8	0	0.0
	2*	12	80.0	17	54.9	0	0.0
	3	1	6.7	5	16.1	0	0.0
	Didn't answer	0	0.0	1	3.2	6	100.0
	Total	15	100.0	31	100.0	6	100.0
14	1*	11	73.3	8	25.8	0	0.0
	2	1	6.7	5	16.1	0	0.0
	3	3	20.0	16	51.6	0	0.0
	Didn't answer	0	0.0	2	6.5	6	100.0
	Total	15	100.0	31	100.0	6	100.0

Table 26. (contd.)

Question Number	Response Number	Viewed N-15		Didn't View N-31		Didn't Say N-6	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
15	1	2	13.3	8	25.8	0	0.0
	2*	12	80.0	23	74.2	0	0.0
	3	1	6.7	0	0.0	0	0.0
	Didn't answer	0	0.0	0	0.0	6	100.0
	Total	15	100.0	31	100.0	6	100.0
16	1*	9	60.0	8	25.8	0	0.0
	2	4	26.6	10	32.3	0	0.0
	3	1	6.7	7	22.6	0	0.0
	Didn't answer	1	6.7	6	19.3	6	100.0
	Total	15	100.0	31	100.0	6	100.0

*Correct answer.

Table 27. How those in group 3 who returned questionnaires both before and after program 2 answered after viewing the program.

Question Number	Response Number	Viewed N-32		Didn't View N-31		Didn't Say N-4	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1	1	0	0.0	3	9.7	0	0.0
	2*	32	100.0	26	83.9	2	50.0
	3	0	0.0	1	3.2	0	0.0
	Didn't answer	0	0.0	1	3.2	2	50.0
	Total	32	100.0	31	100.0	4	100.0
2	1	0	0.0	1	3.2	0	0.0
	2	2	6.2	4	12.9	0	0.0
	3*	26	81.3	18	58.1	1	25.0
	Didn't answer	4	12.5	8	25.8	3	75.0
	Total	32	100.0	31	100.0	4	100.0
3	1*	27	84.3	20	64.5	2	50.0
	2	1	3.1	2	6.5	0	0.0
	3	2	6.3	9	29.0	0	0.0
	Didn't answer	2	6.3	0	0.0	2	50.0
	Total	32	100.0	31	100.0	4	100.0
4	1*	29	90.6	19	61.3	1	25.0
	2	0	0.0	1	3.2	0	0.0
	3	3	9.4	11	35.5	1	25.0
	Didn't answer	0	0.0	0	0.0	2	50.0
	Total	32	100.0	31	100.0	4	100.0
5	1*	31	96.9	27	87.0	2	50.0
	2	0	0.0	2	6.5	0	0.0
	3	1	3.1	2	6.5	0	0.0
	Didn't answer	0	0.0	0	0.0	2	50.0
	Total	32	100.0	31	100.0	4	100.0
6	1	2	6.3	12	38.7	0	0.0
	2*	29	90.6	16	51.6	2	50.0
	3	1	3.1	1	3.2	0	0.0
	Didn't answer	0	0.0	2	6.5	2	50.0
	Total	32	100.0	31	100.0	4	100.0
7	1*	20	62.4	11	35.5	1	25.0
	2	6	18.8	5	16.1	0	0.0
	3	6	18.8	13	41.9	1	25.0
	Didn't answer	0	0.0	2	6.5	2	50.0
	Total	32	100.0	31	100.0	4	100.0

Table 27. (contd.)

Question Number	Response Number	Viewed N-32		Didn't View N-31		Didn't Say N-4	
		Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
8	1	4	12.5	14	45.2	0	0.0
	2*	14	43.8	5	16.1	1	25.0
	3	6	18.7	3	9.7	0	0.0
	Didn't answer	8	25.0	9	29.0	3	75.0
	Total	32	100.0	31	100.0	4	100.0
9	1	1	3.1	9	29.0	0	0.0
	2*	27	84.4	6	19.4	2	50.0
	3	3	9.4	16	51.6	0	0.0
	Didn't answer	1	3.1	0	0.0	2	50.0
	Total	32	100.0	31	100.0	4	100.0
10	1*	30	93.8	18	58.0	2	50.0
	2	1	3.1	10	32.3	0	0.0
	3	1	3.1	3	9.7	0	0.0
	Didn't answer	0	0.0	0	0.0	2	50.0
	Total	32	100.0	31	100.0	4	100.0
11	1	0	0.0	4	12.9	0	0.0
	2*	27	84.4	17	54.8	2	50.0
	3	4	12.5	8	25.8	0	0.0
	Didn't answer	1	3.1	2	6.5	2	50.0
	Total	32	100.0	31	100.0	4	100.0
12	1*	25	78.1	9	29.0	1	25.0
	2	3	9.4	19	61.3	1	25.0
	3	4	12.5	2	6.5	0	0.0
	Didn't answer	0	0.0	1	3.2	2	50.0
	Total	32	100.0	31	100.0	4	100.0
13	1*	24	75.0	22	71.0	2	50.0
	2	3	9.4	4	12.9	2	50.0
	3	5	15.6	4	12.9	0	0.0
	Didn't answer	0	0.0	1	3.2	0	0.0
	Total	32	100.0	31	100.0	4	100.0

*Correct answer.

Table 28. How those in group 5 who returned questionnaires both before and after program 3 answered after viewing the program.

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
1	1	2	10.5	6	27.3
	2	1	5.3	0	0.0
	3*	15	78.9	7	31.8
	4	1	5.3	5	22.7
	Didn't answer	0	0.0	4	18.2
	Total	19	100.0	22	100.0
2	1	1	5.3	5	22.7
	2*	17	89.4	10	45.5
	3	1	5.3	5	22.7
	Didn't answer	0	0.0	2	9.1
	Total	19	100.0	22	100.0
3	1	1	5.3	3	13.6
	2*	17	89.4	8	36.4
	3	1	5.3	8	36.4
	Didn't answer	0	0.0	3	13.6
	Total	19	100.0	22	100.0
4	1	1	5.3	9	40.9
	2*	17	89.4	8	36.4
	3	0	0.0	2	9.1
	4	1	5.3	1	4.5
	Didn't answer	0	0.0	2	9.1
	Total	19	100.0	22	100.0
5	1*	16	84.2	13	59.1
	2	2	10.5	2	9.1
	3	1	5.3	4	18.2
	Didn't answer	0	0.0	3	13.6
	Total	19	100.0	22	100.0
6	1	0	0.0	2	9.1
	2	1	5.3	5	22.7
	3*	17	89.4	10	45.5
	Didn't answer	1	5.3	5	22.7
	Total	19	100.0	22	100.0

Table 28. (contd.)

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
7	1*	15	79.0	1	4.5
	2	0	0.0	0	0.0
	3	2	10.5	17	77.3
	Didn't answer	2	10.5	4	18.2
	Total	19	100.0	22	100.0
8	1	3	15.8	1	4.5
	2	1	5.3	6	27.3
	3*	15	78.9	12	54.6
	Didn't answer	0	0.0	3	13.6
	Total	19	100.0	22	100.0
9	1	3	15.8	1	4.5
	2*	12	63.2	4	18.2
	3	4	21.0	7	31.8
	Didn't answer	0	0.0	3	13.6
	Total	19	100.0	22	100.0
10	1	1	5.3	1	4.5
	2*	12	63.1	2	9.1
	3	3	15.8	3	13.6
	4	2	10.5	9	40.9
	Didn't answer	1	5.3	7	31.9
	Total	19	100.0	22	100.0
11	1	0	0.0	1	4.5
	2*	17	89.5	6	27.3
	3	2	10.5	13	59.1
	Didn't answer	0	0.0	2	9.1
	Total	19	100.0	22	100.0
12	1	1	5.3	1	4.5
	2	11	57.9	2	9.1
	3*	7	36.8	9	40.9
	Didn't answer	0	0.0	10	45.5
	Total	19	100.0	22	100.0

Table 28. (contd.)

Question Number	Response Number	Viewed N-19		Didn't View N-22	
		Number	Percent	Number	Percent
13	1	0	0.0	2	9.1
	2*	16	84.2	4	18.2
	3	2	10.5	6	27.3
	4	1	5.3	3	13.6
	Didn't answer	0	0.0	7	31.8
	Total	19	100.0	22	100.0
14	1*	19	100.0	14	63.7
	2	0	0.0	1	4.5
	3	0	0.0	0	0.0
	4	0	0.0	3	13.6
	Didn't answer	0	0.0	4	18.2
	Total	19	100.0	22	100.0
15	1*	15	78.9	6	27.3
	2	0	0.0	0	0.0
	3	4	21.1	11	50.0
	Didn't answer	0	0.0	5	22.7
	Total	19	100.0	22	100.0

*Correct answer.

Table 29. Effect of selected socio-economic characteristics on ability of viewers to answer test questions, program 1, group 1.

Question Number	Response	Increase in Correct Answers	Average Increase in Correct Answers	Sum of the		Number Answering Question	t =	Significance
				Increase in Correct Answers	Squares of Increases in Correct Answers			
1	1	40	5.00	338	8	7	.3441	Not Significant
	2	29	4.14	279				
2	1	38	3.80	327	10	5	.8397	Not Significant
	2	31	6.20	315				
3	1	11	11.00	121	1	14	5.555	Significant
	2	58	4.14	518				
4	1	41	5.13	377	8	7	.4277	Not Significant
	2	28	4.00	280				
5	1	30	3.00	208	10	10	1.813193	Not Significant
	2	70	7.00	810				
6	1	52	4.00	418	13	2	.6815	Not Significant
	2	17	8.50	229				
7	1	32	5.33	218	6	9	.5239	Not Significant
	2	37	4.11	429				
8	1	24	2.40	116	10	5	2.4101	Significant
	2	45	9.00	542				

Table 29. (contd.)

Question Number	Response	Increase in Correct Answers	Average Increase in Correct Answers	Sum of the Squares of		Number Answering Question	
				Increase in Correct Answers	In Correct Answers		
9	1	28	3.50	180	t = -1.2007	8	Not Significant
	2	41	6.83	467		6	
10	1	3	.75	5	t = -3.407466	4	Significant
	2	63	6.00	642		11	
11	1	6	2.00	20	t = -1.718243	3	Not Significant
	2	63	5.25	627		12	
12	1	30	2.73	192	t = 3.094007	11	Significant
	2	39	9.75	455		4	
13	1	36	3.00	228	t = -2.499704	12	Significant
	2	33	11.00	419		3	

Table 30. Effect of selected socio-economic characteristics on ability of viewers to answer test questions, program 2, group 3.

Question Number	Response	Increase in Correct Answers	Average Increase in Correct Answers	Sum of the Squares of		Number Answering Question	t =	Significance
				Increase in Correct Answers	Increase in Correct Answers			
1	1	38	3.80	202	10	22	.1189	Not Significant
	2	81	3.68	473	22			
2	1	86	3.19	403	27	5	-4.2430	Significant
	2	34	6.80	242	5			
3	1	35	3.18	179	11	20	- .7112	Not Significant
	2	78	3.90	460	20			
4	1	66	3.67	373	18	11	.5507	Not Significant
	2	34	3.09	180	11			
5	1	68	3.40	379	20	18	-1.8912	Not Significant
	2	81	4.50	349	18			
6	1	50	3.13	272	16	15	-1.0250	Not Significant
	2	60	4.00	290	15			
7	1	22	2.75	127	8	21	.8016	Not Significant
	2	78	3.72	406	21			
8	1	68	2.13	354	22	19	-2.9495	Significant
	2	42	4.67	240	19			

Table 30. (contd.)

Question Number	Response	Sum of the				t =	Number Answering Question	
		Increase in Correct Answers	Average Increase in Correct Answers	Squares of Increases in Correct Answers				
9	1	34	3.78	192		.6402	9	Not Significant
	2	55	3.06	285			18	
10	1	-1	-1	-1		-10.2135	1	Significant
	2	120	3.87	676			31	
11	1	25	4.17	121		1.0122	6	Not Significant
	2	48	3.00	250			16	
12	1	63	3.32	299		.9324	19	Not Significant
	2	56	4.31	376			13	
13	1	21	3.50	123		.2538	6	Not Significant
	2	47	3.13	247			15	

Table 31. Effect of selected socio-economic characteristics on ability of viewers to answer test questions, program 3, group 5.

Question Number	Response	Increase in Correct Answers	Average Increase in Correct Answers	Sum of the Squares of Increases in Correct Answers		Number Answering Question	t =	Significance
				Increase in Correct Answers	Sum of the Squares of Increases in Correct Answers			
1	1	70	5.83	454	137	12	1.888204	Not Significant
	2	23	3.29			7		
2	1	60	4.29	356	186	14	1.578536	Not Significant
	2	26	6.50			4		
3	1	21	4.20	135	426	5	.577860	Not Significant
	2	72	5.14			14		
4	1	59	4.92	345	216	12	.047040	Not Significant
	2	34	4.86			7		
5	1	80	5.00	532	111	16	1.021800	Not Significant
	2	23	3.83			6		
6	1	39	4.88	249	342	8	.022674	Not Significant
	2	54	4.91			11		
7	1	20	4.00	98	492	5	-1.718435	Not Significant
	2	72	6.00			12		
8	1	50	4.17	278	313	12	-1.514918	Not Significant
	2	43	6.14			7		

Table 31. (contd.)

Question Number	Response	Sum of the				Number Answering Question	
		Increase in Correct Answers	Average Increase in Correct Answers	Squares of Increases in Correct Answers			
9	1	26	3.25	116	$t = 3.558622$	8	Significant
	2	60	6.67	426		9	
10	1	5	5.00	25	$t = .840688$	1	Not Significant
	2	88	4.44	566		18	
11	1	2	2.00	4	$t = -4.451455$	1	Significant
	2	76	5.42	520		14	
12	1	74	4.63	462	$t = 1.219460$	16	Not Significant
	2	19	6.33	129		3	
13	1	15	5.00	107	$t = -.061798$	3	Not Significant
	2	67	5.15	419		13	

OUTLINE SCRIPT

PLANTS ARE FOR PEOPLE

Saturday, April 8, 1961

Show #3

Producer: Don Watson
 Assistant Producer: Dan Matsumoto
 Director: Al Becker
 Rehearsal: Dry 2:00 p.m. - April 7, 1961
 Location: TV Garden Studio
 Camera 8:00 a.m., April 8, 1961
 Tape Recording: 9:30 a.m., April 8, 1961
 Talent: Don Watson
 Bob Worrall
 Guest: Verna Treaster

Principle Subject: Roses for the Home

(1) Center near tree

garden cart
 fork
 hand fork
 rose fertilizer
 pruning shears
 spray paint (yellow, gray)

(3) Right on Lawn

plastic greenhouse flat
 (Mrs. Treaster)

(2) Center on Lawn

2 good quality packaged rose
 2 poor quality bare root H.T. rose
 2 potted roses
 shovel
 hose
 pruning shears
 Good picture of H.T. & floribunda
 from catalog
 good kodachrome slide of each

(4) Center near Concrete

2 good rose bushes
 shovel
 hand pruners
 watering can
 5 stages of grafted
 blue spruce, Juniper
 3 stages of taxus
 cuttings
 extra ties
 budding knife (sharp)

(5) Moving around garden

labels for bulbs in flower
 bulletin: Roses for the Home

DETAIL SCRIPT

DON REMOVING STRAW FROM ROSE BUSH

Bob - well, Don, it's a beautiful day but I don't know whether you ought to take that straw off your rose bush yet, there may be some frost tonight.

Don - yes, there may be, Bob, but I think it's time we took a chance. After all, it's still dormant.

C.U. ROSE BUSH

Bob - well, it's still green down here, at least underneath where the mulch was.

Don - isn't that interesting?

Bob - right about to here, about 6 inches. The rest of it's dead, isn't it?

Don - dead from there on up, I'd say. It's pretty brown, anyway. You can't tell for sure until you cut the branches. And of course, it should be nice and green down underneath where we heaped the soil up to protect it during the winter.

Bob - that's a pretty good idea in the fall to heap the dirt up around here, eh?

Don - oh, you almost have to. That looks pretty nice, doesn't it?

Bob - yes, it looks like it ought to start right off.

Don - now, and of course it's not serious for it to have died at the top like this because we're going to prune it and we'll cut that off anyway.

Bob - you cut it off and I'll get rid of those things for you.

DON PRUNES ROSE

Don - ok. Spiny, aren't they?

Bob - yes, you're supposed to use gloves for a job like this, aren't you?

Don - it's such a nice day I just want to be enjoying this warm weather. I don't worry about gloves. Now, there's nothing difficult to pruning is there?

Bob - there doesn't seem to be.

C.U. ROSE BUSH

Don - of course, I cut them back like this with four or five inches left of that new green growth, see how green that is all around in there?

Bob - seems to be good and healthy.

Don - yes, that will make the stems shoot up, you'll be just amazed. Inside of another month and a half there'll be growth on there, 18 inches high.

Bob - so really our cold winters aren't much of a hazard as far as rose growing is concerned?

Don - oh, no.

Bob - as long as you take proper care of them.

Don - that's right.

Bob - what have you got there, fertilizer?

C.U. FERTILIZER

Don - yes, a special rose fertilizer.

Bob - what does that mean, Don?

Don - well, it's specially prepared with an analysis that's suitable for roses.

DCN FERTILIZES ROSES

now I'm going to put just one handful of this on, cultivate it in a little bit, and then we'll put another handful on in October. That's all the fertilizer it will get except for leaf feeding.

Bob - leaf feeding? You mean you actually spray it on the plants and it goes right through the leaves?

Don - that's right. Dr. Stinson has been doing quite a lot of that in our garden here on the Campus and it's just worked beautifully.

Bob - but that's only for nitrogen.

Don - that's right. We spray potassium nitrate on the leaves. We'll do that later, it's of course too early now because they haven't started to grow.

Bob - I wonder if we could go back and review just a little bit from last week. You told me about nitrogen, phosphorous and potash as being the important elements of garden fertilizer. Is this the same for roses?

Don - this is the same for roses. Except that we'll give them additional nitrogen during the summer so they'll grow more vigorously, get better leaves and as a result of that there'll be bigger and more flowers.

Bob - I can see that it really pays to put fertilizer on roses.

Don - yes, and you'll just be amazed at how well this one grows.

BOB AND DON WALK TO NEW BUSHES

Don - I've got some new bushes over here, I want to show you those.

Bob - OK.

Don - there's a big difference in the quality of rose bushes.

C.U. HYBRID TEA ROSE BUSH

For instance, this one's a hybrid tea.

Bob - now wait a minute - hybrid tea - that's not a variety.

Don - no, but it's a type. This is a hybrid tea, too.

C.U. PICTURE ON PACKAGE

Don - you see the picture on it?

Bob - oh, I see, it's a big single blossom. That's what distinguishes it from the floribunda.

PAN TO SECOND HYBRID TEA

Don - there's another hybrid tea, they're not too different except that they're in a different kind of container. This one is in a tar paper pot and it's already started to grow. This one is packaged, it's still a good bush but it hasn't yet been planted.

PAN TO BARE ROOT

Don - and this one is what we call bare root.

Bob - is it necessary to have them all covered up like this?

Don - the root needs to be protected well, because the moisture can't escape that way.

Bob - it seems to me it's a little dangerous to have these roots right out in the open like this.

Don - well, we won't leave them out in the open long. Notice it's been wrapped in a mixture of shingle toe and sphagnum moss.

Bob - what is shingle toe, wood shavings?

CU WOOD SHAVINGS

Don - yes, wood shavings, they're shredded.

Bob - that's nice and damp and keeps the roots from drying out.

Don - now, as I said, that's the hybrid tea. Get that picture back so you can see the difference.

C.U. ROSE BUSH, FLORIBUNDA

Don - now, here's a floribunda.

Bob - I suppose that means an abundance of flowers.

Don - that's right. They're not quite as large but they have many more flowers on each bush and on each stem -- they're in clusters. They flower throughout the summer more continuously than the hybrid teas.

C.U. HYBRID TEA ROSE

Bob - if I want to get the biggest blossom in my neighborhood, this is the one to get.

Don - the hybrid tea is the one to get. Now, let me show you also a poor bush because these are good ones.

SHOWS A POOR BUSH

Don - Here's a horrible looking specimen. Notice that?

C.U. SHOWING SPROUTS

Bob - why it looks like it's got potato sprouts on it.

Don - that's just about what it looks like. It doesn't have any name on it. This little tag just says two-toned rose -- it doesn't give a name like the other one that was a Chrysler Imperial.

Bob - there's no pretty picture on the front to tell you exactly what shade, either.

Don - no, and while the roots are wrapped up, it still can't be nearly as good a plant because it isn't as vigorous.

POINT TO STEMS

Don - look at the size of the stems on this for instance.

Bob - some of these are about 1/2 inch thick.

Don - isn't that beautiful?

Bob - how big should they be, Don?

Don - well they need to be larger than the size of a lead pencil, but of course, the bigger they are the more vigorous they are.

Bob - and how many stems should there be?

Don - three to five.

Bob - that one has only two.

Don - that one only has two and all the buds instead of being dormant have started to grow. Now this one might be likely to freeze if it were put out.

Bob - that's because the young sprouts are tender.

Don - of course, they're quite tender because they've been inside where it's warm and away from the light.

Bob - I suppose you have to be a little leary of the sales that you see -- 2 for \$1.00 roses and that type of thing.

Don - well, you usually get just what you pay for and it's true in roses as it is in anything else.

C.U. POOR ROSE BUSHES

Don - now this one will cost a great deal more than this one but it isn't very good economy because I don't think this one will ever amount to anything.

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C.U. GOOD ROSE BUSH

Don - that of course is an exceptionally good one.

Bob - so you want to be careful when you buy these to make sure there are no growing sprouts on here.

Don - at this time of year. Now of course, if it's a potted rose and you want to buy it later in the season or even in the summer, you can buy it when it's in flower.

Bob - and put it right in and it will grow?

Don - and put it right in and it will grow because you don't disturb the roots.

Bob - let's summarize what we said here about what to look for when you buy a rose.

Don - OK.

Bob - you want one that's dormant, that hasn't any sprouts growing on it at this time of year.

Don - early in the season, that's right.

Bob - and you want it to have about three or four good stems.

Don - good sized stems. At least the size of a lead pencil.

Bob - you want to have the roots protected some way whether it be in a tar paper bucket or in a sack of some sort.

Don - that's right. And a good healthy root system. The quality in a plant is extremely important because if you don't start with good quality you won't really have much hope of producing anything no matter what or how careful you are in growing them. You spend a lot of time doing that.

Bob - well, if you have a shovel, I'll be glad to plant this for you.

DON HANDS BOB A SHOVEL

Don - there's a shovel right here. I want to go over and talk to Verna Treaster. She brought her greenhouse with her.

Bob - a greenhouse? She carried it? That I'd like to see.

DON WALKS TO MRS. TREASTER

Don - I'll show you. Good morning, Verna.

Verna - hi, Don, how are you.

Don - oh, you've got your greenhouse! and you've got a pine tree!

C.U. PINE TREE

Verna - yes, it's a white pine seedling. It was on the table at the all-Michigan dinner for the Michigan Press Association so I took it home and it was about this high. This is all new growth.

Don - how long ago was that?

Verna - about the last week in January.

Don - and it's grown that much in the house?

Verna - yes.

Don - are you going to give it to me?

Verna - yes, I want you to plant it out here.

Don - we'll put it right in our garden. That is a nice little tree -- a Michigan grown white pine from the Michigan Association of Nurserymen. We'll put it right here in the garden and see how it does. But tell me about your greenhouse, did you have success?

C.U. ELECTRICAL HOTBED

Verna - I planted the seeds one day and two days later they were up!

DON DEMONSTRATES USE OF HOTBED

Don - that's the cord, you plug that into the wall, any wall cord.

And then this lid comes off - a lot of moisture in there, isn't there? See how that's condensed? How often do you water it?

Verna - very little. It just didn't take much water. The vermiculite was moist, the seeds planted and very little water put on it.

C.U. THERMOSTAT

Don - oh, this is the thermostat.

Verna - that's the heat thermostat and it's very peculiar -- this caused a static interference on our small radio.

Don - well, that's too bad.

POINT OUT BEAN SPROUT

Don - now this plant -- what in the world is that? Is it a bean?

Verna - I found a package of beans in a drawer that I had had for about 5 or 6 years so I planted one to see if it would grow.

Don - and you'd had them five years?

Verna - it came right up.

Don - isn't that amazing?

Verna - it really is.

Don - I've seen some wheat in Cairo that was in King Tut's tomb and it even grew - had been there for hundreds of years.

Verna - then age makes no difference.

Don - oh, it does with some seed.

POINT OUT OTHER SEEDLINGS

Don - some of these don't look good, Verna, I hate to tell you.

Verna - they're very straggly looking aren't they?

Don - they certainly are.

Verna - it was a west window, but evidently not enough light reached them.

Don - no, I'm afraid you didn't have quite enough light. And maybe it was a little too warm.

Verna - I planted the seeds too thickly, I'm sure of that.

Don - what are those?

Verna - those are balsam seeds.

Don - I'm afraid they're a little too spindly. It isn't too late to reseed them. You could still grow some. Let's take them off and reseed them.

Verna - alright. Here are the basil seeds.

Don - oh, they've done well. Oh yes, you can see how much better they've done. You can put those out into the garden in another three weeks or so. But in the meantime they'll grow a little. I think they'll be fine. But if I were you, I'd sow some more seed -- what kind do you have left here?

Verna - I have larkspur, there's still balsam and marigold. Here's some of the marigolds.

Don - they're doing fairly well.

Verna - and here again is some balsam. I planted them in sections to see if one would come up faster than the others, even if they were in the same greenhouse.

Don - that was a good idea. Well, you've enjoyed using it.

Verna - yes, it was fun watching them come up.

Don - I think you'll find that they'll do a little better, Verna, if you put a light right over the greenhouse. That will tend to make the plants grow straight up rather than lean quite so much. I'm sorry they didn't do better but I think you've had a good time, anyway.

Verna - I had fun doing it.

Don - I'm going to go back, Bob's planting a rose over there and I want to see how he's getting along. Thank you.

DON WALKS TO BOB

Don - oh, here you are, what have you got?

Bob - well I think this is an unusual kind of plant here for this early in the season.

C.U. FLOWERING QUINCE

Don - this is our plant of the week.

Bob - well, what is it? It looks a little bit like a crabapple blossom.

Don - well, the common name of it is quince and it is closely related to a crabapple. So it's natural that it looks a little like a crabapple.

Bob - a nice pink blossom.

Don - yes, it's called Chaenomeles Lagenaria. The genus is chaenomeles and the species is lagenaria.

Bob - but if I went to the nurseryman I would ask for a flowering quince?

Don - a flowering quince and also I'd ask for "Stanford Red." This one being a nice crimson dark red, is called Stanford Red and it's an improved variety compared to some of them that are not as new.

Bob - well, Don, where would you plant a quince like this? Right near the house?

Don - I think you'd like it better if it were growing farther away from the house because it would have a lot more light and it would grow to be a lot larger. I think it would be better although I have seen them growing right up the wall of a house and trained on the wall.

Bob - is this the same kind that actually has quinces on it?

Don - yes, sometimes. If during the time they're in flower, the bees are active, quinces develop. It is an awfully good plant and flowers early. These flowers come out before the leaves get to be very large and makes it very attractive.

Bob - how tall would this plant get?

Don - they get huge and it's good to use as kind of a hedge or barricade to keep dogs or children from getting into places where you have tender little things growing.

Bob - well it's a very attractive plant.

BOB AND DON MOVE TO ROSE BUSH

Don - you've got your rose bush planted.

Bob - I have it all planted.

Don - you've got it a little deep.

Bob - well, I wanted to make sure I got all the roots under the surface.

Don - well you did, but you've got quite a bit of the stem under the surface, too.

DON PULLS BUSH OUT

Bob - wait, you don't want to pull it out like that do you? Won't you break it off?

Don - no, let's plant it again, that's much too deep.

C.U. ROSE BUSH ROOTS

Don - you see, you had it covered up to about here. And you really only should go about an inch above this graft.

Bob - wait a minute, now, graft, what does that mean?

Don - the rose, you know, grows on a wild root. From here down it's a wild rose and from here up it was grafted or budded.

INDICATE GRAFT UNION

Don - a bud is set right in the stem right where that lump is.

Bob - I see. What's the advantage in a wild root?

Don - oh, it's much hardier.

Bob - I see, it will live through the cold winter, then?

Don - it will live through the cold winter, it's vigorous and grows well. You see there's where the old top was cut off. I've got some spruce I'll show you in a minute that have been grafted and you'll see what I mean more clearly.

Bob - do you want me to dig this hole again so we can plant this right?

Don - I think we should plant it not quite so deep.

Bob - OK.

Don - there's a danger of planting it too shallow and there's a danger of planting it too deep.

BOB DIGS HOLE

Bob - what is right?

Don - about an inch above where that graft is. Now that's deep enough.

Bob - is that about it?

DON FINISHES HOLE

Don - I'll make a little mound down in the hole to sit the root on. Like that. And spread the root on it. Now, I think you'll find that the soil will come out just about an inch below the graft. Now, mind you, it would have grown the way you had it but this is just a little better.

Bob - is it necessary to tamp the soil down here firmly around the roots?

Don - I would, yes, with your hands.

Bob - you wouldn't use a hoe handle or something like that?

Don - a hoe handle would be alright but I wouldn't want to use my foot, because I might damage some of the roots.

DON POURS WATER INTO THE HOLE

Don - now let's just put a little water in there to settle that nicely. That's good, that's enough. Now we'll fill it up.

DON TRAMPS THE SOIL AROUND THE BUSH

Don - and tramp it down.

DON MAKES A SAUCER AROUND THE BASE OF THE PLANT

Don - and then we'll saucer it.

Bob - we'll what?

Don - we'll make a little saucer around the edge.

Bob - what's the purpose of that?

Don - so the water will run toward the plant.

Bob - I see there is just about an inch and a half from the place
where the graft was made to the top of the soil.

Don - I think that's just about right. Now of course later in the
season when it's filled up, it'll cover up to about there.

DON INDICATE POINT ON THE STEMS

Bob - before we leave this I wonder, Don, if I could ask you what
kind of soils are best for roses?

Don - a sandy loam is just ideal.

Bob - something like you'd have in a good garden?

Don - yes.

Bob - you wouldn't put it in pure sand or even in clay, I've heard
that clay was pretty good for roses.

Don - well clay is alright but a good garden soil is best. Now I
told you I'd show you about budding, and grafting and I have
a spruce I want to show you.

DON AND BOB WALK TO SPRUCE TREES

Don - let's go over there.

Bob - OK.

Don - here they are.

SHOW TAXUS CUTTINGS

Don - first, I'd better show you these plants that are grown from cuttings. See, this is just a piece that was taken off a taxus, like we had a few weeks ago. Now, if you just cut it like that, then take these side branches off, like this.

Bob - do you mean you can just stick those in the ground and they'll start growing?

Don - yes, in sand, in a propagation bench. Take these leaves off. Stick it in and it will start to root on the stem.

Bob - but this is done by a professional nurseryman, I assume, not an amateur gardener.

C.U. CUTTINGS

Don - well, it's difficult to do unless you have the right environment. This means a propagation bench and usually there's heat under the sand in the bench. Now this one's been a couple of weeks and it's begun to callous, see there on the bottom?

Bob - is that where the root will come out, right there at the bottom?

Don - yes. Here's one for instance that's been in about 4 weeks.

Bob - one root's already out.

Don - see, there's some little roots on it.

Bob - looks like roots a couple inches long already.

Don - now, I'm not sure whether that's 7 or 8 weeks. But you see how the root's coming on there? Now from there they'll be transplanted out into a cold frame or some protected area, grown for a year and then eventually they'll be put right out into a nursery. Now, you can't do that with a spruce.

SHOW BLUE SPRUCE

Don - this is a blue spruce. See how blue it is? If you were to put this in the ground it would very rarely get roots on it. So you have to graft it.

Bob - what makes the difference, Don?

Don - it's the difference in the structure and the habit of the plant.

In doing this you have to make a slit on the side of the stem.

DON DEMONSTRATES GRAFTING SPRUCE

Don - I'll show you, like this, about that long.

Bob - about an inch and a half or so.

Don - yes, that's not quite long enough. Taper it just like that.

Bob - this is almost the same thing as you do with roses or even with horticultural crops like apples.

Don - you do this with a lot of horticultural crops.

DON HANDS BOB THE CONTAINER

Don - now will you hold that? You see on this Norway spruce which you use as the root, you make a similar cut so that you can match them.

DON PLACES BRANCH ON THE NEW TRUNK

Don - you make a notch in the bottom like that.

Bob - this is so you bring the living part of the plant in contact, I suppose.

Don - the living cambium which is right along the edge comes in contact.

Bob - I can't get used to calling those leaves, they look like needles.

Don - well, they are.

Bob - the same thing.

Don - that's right. Now, hold it there. Now, you wrap this with this rubber band.

Bob - looks like an ordinary rubber band. That's just to hold it together, I suppose while it gets started. I have a lot more respect for the nurseryman and the operation he has to go through to get these young plants started.

Don - it is quite an undertaking and of course this is why you can't just buy them for nothing. That little spruce was about two years old.

DON SHOWS SPRUCE

Don - here's one that's been growing on here since February. Oh, I should have mentioned that you do this in February.

DON APPLIES GRAFTING WAX

Bob - what you got there, sealing wax or something like that? I suppose that's to keep out the moisture?

Don - that's grafting wax to keep out the moisture. Now I'm just cutting off the rubber band. It's important that it doesn't stay on too long because it can cut right through the stem. Now you see how that's already started to grow?

C.U. GRAFTED BRANCH

Bob - yes, that's already started there. Looks like it's good and healthy doesn't it?

DON CUT OFF PARENT TREE

Don - it's already to have this part removed. So that it will then grow into a blue spruce.

Bob - we just sacrifice the Norway pine.

Don - that's right.

DON SHOW SPRUCE WHICH HAS BEEN PRUNED

Don - you see that one has been cut off there. And now from here up
it's blue and will grow into a tree.

Bob - will this be a nice straight tree?

Don - it won't be quite as straight as if it had grown from seed but
it will still make a nice tree. There's a little one there
behind you. Look at that.

DON AND BOB MOVE TO BLUE SPRUCE ON GROUND

Bob - oh, this one right here?

Don - yes, now.

Bob - that's not so little, that must be what, 3 or 4 years old?

C.U. SPRUCE TREE

Don - this one's 12 years old.

Bob - 12 years old!

Don - yes, they don't grow very rapidly. It's 12 years from the time
it was grafted, just the way that one was that I showed you.

Bob - well, it's a pretty tree and I can see why you have to pay a
bit more for a blue spruce.

Don - It's unusual and, of course, it's guaranteed to be absolutely
blue. Now of course it will grow into a great big tree. I'll
show you one.

SHOW SLIDE OF TALL SPRUCE

Don - one that's 40 years old.

Bob - it's also about 40 feet high, isn't it?

Don - it is, and isn't it nice and bushy and doesn't it look nice?

Bob - these are very attractive trees.

Don - now you do the same thing with junipers.

DON SHOWS BOB JUNIPERS

Don - here's a Spartan Juniper.

Bob - how old is this one, Don?

Don - this one's 2 years old, from the time it was grafted.

Bob - about two feet high.

Don - here's one that's one year old from the time it was grafted.

Bob - these grow a little faster than the spruces, don't they?

Don - yes, they do and it's a very good type of plant because it's upright. It was started the same way, see here's a sample.

DON POINTS OUT GRAFT UNION

Don - that was the root stock, in fact it's ready to be cut off. I can just take it off. I want to be careful not to disturb the graft. Now you see how upright and straight this is. This one was done in February, this was a year ago February, and the other one two years ago February. Here's one that died.

Bob - what percentage of success would you have? Seems like this is kind of a ticklish operation.

Don - it's a ticklish operation, especially getting those living tissues to match, so that they'll grow. Seventy-five or 80 percent of them usually live.

Bob - this is one of the real problems that a nurseryman has, isn't it?

Don - that's right.

Bob - that increases his cost of course.

Don - you just can't produce these as easily without this kind of operation. Now you can grow some of them from seed, like that pine that Verna had. A white pine will grow very well, but if you try to grow a blue spruce from seed, it won't all turn out to be very blue.

Bob - they're not dependable?

Don - they're not dependable. Some of them will be blue but there'll be a very small percentage.

Bob - I suppose roses are even less dependable, aren't they?

Don - yes, let's go look at those bulbs.

DCN AND BOB MOVE TO BULBS

Bob - alright.

Don - do you notice the little scillas? They come out early in the season and they're small and have very brilliant colors.

C.U. SCILLA

Don - this is Siberian scilla. *Scilla siberica* spring beauty. That's the cultivar name describing the earliness.

SHOW IRIS

Don - here's an iris - early iris.

Bob - that's a nice looking plant.

Don - it's very delicate but it's surprising how early these come into bloom. It's *Iris Reticulata*.

Bob - it's nice to have real early ones popping out of the ground first thing in the spring, as soon as the weather gets warm.

Don - that's right. And it's a little different than the iris that you normally have later in the season. You notice how long it is?

MUSIC IN, VOICES FADE

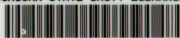
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