

AN ANALYSIS OF THE ADOPTION OF INNOVATIONS  
BY OKANAGAN ORCHARDISTS

by

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## ABSTRACT

This study analyses the adoption of some innovations by Okanagan Valley orchardists. Comparisons were made with findings on the adoption of innovations by American farmers.

Also included in the study is an evaluation of the 1964 televised chautauqua produced by the Horticultural Branch of the British Columbia Department of Agriculture. This style of chautauqua (which may be defined as an assembly for educational purposes, lectures, entertainment, etc.) replaced an earlier version held in district halls throughout the Okanagan Valley.

The data were gathered by interviewing a sample of Okanagan Valley orchardists from the population of orchardists in the area served by the 1964 T.V. Chautauqua and who were also included in the 1960 Orchard Survey of the Okanagan Valley.

Generally, adoption theory, as developed from studies in other countries, can be applied to a specific Canadian setting. Earlier adopters of innovations were more active educationally, had been in orcharding longer, had larger and more valuable orchards, and sold more orchard products than later adopters.

These results coincide with past studies. However, the vast majority of the early adopters were full-time orchardists,

while other studies have found part-time farmers to be the most innovative. Also, this study found complete ownership of the farm to be a characteristic of the later adopters while other studies have found this characteristic of early adopters.

Two differences with previous studies were found in the use of sources of information. Agricultural agencies increased in importance between the awareness and interest stages in the adoption process. Also unique to this study was less use of mass media and agricultural agencies by the earlier adopters than the later ones.

Evidence of a two-step concept of the diffusion of technological innovations was found with innovations flowing from their place of origin to the earlier adopters and from them to the later adopters.

Innovativeness was found to be a general characteristic of certain respondents in that they adopted most innovations.

The T.V. Chautauqua was more valuable than its predecessor in one respect; more of the laggards (who use fewer agricultural agencies than most orchardists) watched the televised program than attended the district hall chautauqua.

This study is limited by the use of a sample to gather data, the use of an incomplete population list for sampling and inconsistencies in the interpretation of questions and answers by the interviewers.



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## CHAPTER I

### INTRODUCTION

#### I. THE OKANAGAN VALLEY

The Okanagan Valley of British Columbia is one of the principal tree-fruit growing areas of Canada. It is located in the interior plateau of the province, two hundred miles east of Vancouver. Bounded on the east by the Gold Range of mountains and on the west by the Cascade Range, the valley stretches northward from the United States' border for one hundred miles.

In 1961, the population of the area was approximately 85,000. A large proportion of the population lived in the three major towns of the area: Vernon (with a population of 10,250), Kelowna (13,188), and Penticton (13,850).

The valley is in the dry belt of the province and has an average annual rainfall of 14.63 inches. This compares with the coastal city of Vancouver which has an average annual rainfall of 52.47 inches. Surrounding mountains protect the valley from cold weather systems and allow the lowest monthly mean temperature to stay at twenty-six degrees Fahrenheit. On the other hand, the four summer months of June, July, August, and September have mean temperatures of sixty-three, seventy, sixty-seven, and

sixty degrees Fahrenheit, respectively.<sup>1</sup> The most common soils of the area are the Brown and Dark Brown Chernozemic.

These environmental attributes of the Okanagan Valley have all contributed to its development as a tree-fruit growing area. Fruit trees will not grow naturally in the valley because of the low levels of precipitation and thus their planting had to wait until the development of irrigation. 1866 saw the first artificial irrigation started near Vernon. By 1874 several small plots of trees had been planted by ranchers to supply themselves with fruit. The first commercial orchard was planted in 1892 on the Coldstream Ranch near Vernon. From then until 1913, a fruit land boom occurred as many realized the potentialities of the area.

The B. C. fruit industry has grown until the value of the 1963 crop was \$17,565,729.<sup>2</sup> This was eleven per cent of the provincial farm cash income. The Okanagan Valley produces approximately 92.5 per cent of all the fruit grown in the province. Thus, slightly over ten per cent of the B. C. farm cash

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<sup>1</sup>Climatic data is based on thirty year averages of Summerland, B.C., from British Columbia Department of Agriculture, Climate of British Columbia, Report for 1963, Victoria, n.d.

<sup>2</sup>British Columbia Department of Agriculture, Markets and Statistics Branch. Agricultural Statistics Report 1963, undated, mimeo.

income is due to Okanagan tree fruit. Agriculture, and especially tree fruits, are also very important in the total economy of the Okanagan. In this region over eighteen per cent of the population live on farms. This is a higher percentage than other regions of the province. Fifty-two per cent of these farmers' cash income comes from tree fruit.

The crop is produced by 2790 growers on over two million trees. Orchards range in size from one acre to over three hundred acres. About seventy per cent are sprinkler irrigated. On an acreage basis, apples are the most extensive crop comprising slightly over sixty per cent of the orchard area. Pears and peaches each make up ten per cent of the acreage, cherries eight per cent, apricots six per cent, prunes five per cent, and crabapples and plums both less than one per cent.

## II. AGRICULTURAL EXTENSION

Section ninety-five of the British North America Act gives the powers of legislation respecting agriculture to both the federal parliament and the provincial legislatures. Section ninety-three states that the provincial legislatures shall have the exclusive powers to make laws in relation to education. These constitutional requirements along with the diversified climate, topography, and agriculture of Canada have made the

organization of the extension of information to the farmer a field of provincial activity with federal co-operation.

### B. C. Department of Agriculture

The British Columbia Department of Agriculture was organized in 1873 and the first Minister of Agriculture appointed in 1891. Originally, contacts with the farmers of the province were through fifty-four farmers acting as correspondents who were a means of disseminating information and distributing bulletins. Later, the department worked through the newly-formed Farmers' Institutes and other agricultural organizations.

In the B. C. Department of Agriculture, there was an early emphasis on the control and eradication of fruit diseases and pests. This required a number of full-time staff members and the first horticultural extension staff grew out of these. To provide technical assistance to orchardists and diffuse new information related to fruit culture at the present time, the department maintains nine horticulturists, an apiarist, a plant pathologist, and an entomologist in the Okanagan Valley.

### Canada Department of Agriculture

The federal co-operation in extending information to Okanagan Valley orchardists is primarily through the experimental farm at Summerland, B.C. Founded in 1914, this research

establishment has made a number of important contributions to the fruit industry through research in boron deficiency, fruit quality control, bulk handling of fruit, concentrate spraying, and other fields. Not only is this new information extremely valuable to the orchardists, but the experimental farm personnel are very active at various educational gatherings of orchardists.

### The T.V. Chautauqua

One of the primary extension methods used by the B. C. Department of Agriculture Horticultural Branch is the annual fruit-growers' chautauqua.

Carter defines a chautauqua as "an assembly for educational purposes, lectures, entertainment, etc."<sup>3</sup> The first chautauqua was given approximately fifty years ago. Horticulturists and associated specialists gave thirty or more talks in centers throughout the Okanagan Valley but "it was . . . a long difficult series and expensive as well."<sup>4</sup>

A method to overcome these problems needed to be found. Television appeared to be the answer. T. V. has been used as a

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<sup>3</sup>A. C. Carter, Report of the 1963 Televised Chautauqua, unpublished, B. C. Department of Agriculture Horticultural Branch, June 1963, p. 2.

<sup>4</sup>Ibid.

mass communication method in agricultural extension for the Okanagan since April 1958. CHBC-TV, located in Kelowna but with a number of satellite transmitters throughout the Okanagan Valley, agreed to carry a chautauqua program for a modest fee during a period when the station was normally off the air. Carter<sup>5</sup> felt that the advantages of a televised chautauqua over the earlier procedure were that a larger staff of specialists and more visual aids could be used, unfavourable winter travel conditions could be avoided, and the time would not conflict with other community activities. The only disadvantage seen was the lack of direct participation from the audience. To overcome this, it was arranged to have questions phoned in and answered later on the program.

The first T. V. Chautauqua was held during the week of January 28 to February 1, 1963 from nine to ten-thirty in the morning. The end of January was thought to be the best time as this is usually a period of poor weather and also it was the week following the convention of the B. C. Fruit Growers Association where publicity could be given for the T.V. chautauqua. The first four programs covered entomology, pathology,

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<sup>5</sup>A. C. Carter, loc. cit.



pomology, and weather. The last program was devoted to answering telephoned question. Three hundred growers responded to a mail questionnaire with 96.4 per cent expressing approval and wishing to have the program continued the following year.

The 1964 T.V. Chautauqua was held from January 27 to 31 from eight-thirty to ten a.m. The Monday to Thursday programs were devoted to pest control, apple maturity and harvest, peach maturity and harvest, and what to plant. Friday was again used for telephoned questions and answers. Those appearing on the chautauqua were specialists from the B. C. Department of Agriculture, the Research Branch of the Canada Department of Agriculture, and the fruit industry itself.

### III. PURPOSES OF THE STUDY

After two T. V. Chautauquas, the B. C. Department of Agriculture felt that an evaluation of the effectiveness of the T.V. Chautauqua was needed especially in relation to the old style of chautauqua. In co-operation with the Department of Agricultural Economics at the University of British Columbia, the study was expanded to include an overall study of the adoption of technical innovations by Okanagan Valley orchardists.

More specifically, the study reported here had a two-fold purpose. On the one hand, it was concerned with assessing the adoption behavior of a specified Canadian population in

order to determine the applicability of general adoption theory and research to a Canadian agricultural setting. On the other hand, the study was concerned with assessing the effectiveness of television as a method of introducing innovations to a specified agricultural population.

#### IV. REVIEW OF RELATED LITERATURE

The majority of previous studies of the adoption of innovations by any group have been carried out in the United States of America. None have been done in Canada. The following review summarizes definitions, theory, and findings having to do with the adoption of innovations.

##### Definitions

The following definitions are used throughout this study and are adapted from Rogers.<sup>6</sup>

A social system is a population of differentiated individuals who are similar to the extent of having a common problem to solve.

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<sup>6</sup>E. M. Rogers, Diffusion of Innovations, New York, Free Press, 1962, pp. 61 - 70.

An innovation is an idea perceived as new by individuals.

Adoption is a decision to use and continue using an innovation. The adoption process is the mental process through which an individual passes from first hearing about an innovation to final adoption.

The diffusion process is the spread of an innovation from its source of invention or creation to its ultimate users or adopters.

Innovativeness is the degree to which an individual is relatively earlier in adopting innovations than other members of his social system.

Adopter categories are the classifications of members of a social system on the basis of their innovativeness.

### Stages in the Adoption Process

Lionberger<sup>7</sup> has compiled five stages in the adoption process from a number of previous studies. With minor modifications these are:

1. Awareness: defined as the first knowledge about a new practice.
2. Interest: the active seeking of extensive and detailed information about the idea to determine its possible usefulness and applicability.

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<sup>7</sup>H. F. Lionberger, Adoption of New Ideas and Practices, Ames, Iowa State University Press, 1960, p. 70.

3. Evaluation: weighing and sifting the acquired information and evidence in the light of existing conditions into which the practice will have to fit.
4. Trial: the tentative trying out of the practice accompanied by acquisition of information on how to do it.
5. Adoption: the full-scale integration of the practice into the behaviour of an individual.

Beal et al.<sup>8</sup> examining the concept of stages in the adoption process, felt that such a concept was valid. Lionberger states that the stages of adoption:

represent a useful way of describing a relatively continuous series of actions, event, and influences that intervene between initial knowledge about an idea, product, or practice and the actual adoption of it.<sup>9</sup>

Rogers<sup>10</sup> thought it was conceptually clear and practically sound to use the five-stage adoption process.

#### Adopter Categories

Rogers<sup>11</sup> states that the distribution of adopters when

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<sup>8</sup>George M. Beal, Everett M. Rogers, and J. M. Bohlen, "Validity of the Concept of Stages in the Adoption Process," Rural Sociology, vol. 22, no. 2 (June 1957), pp. 166 - 168.

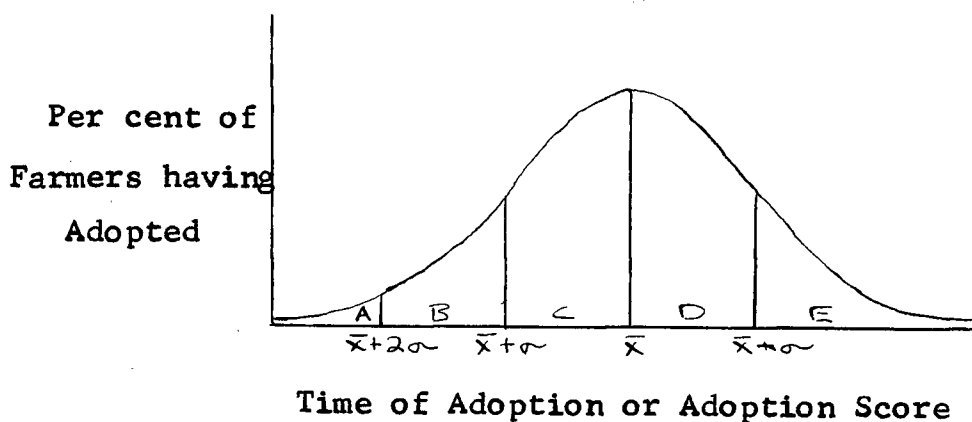
<sup>9</sup>Lionberger, op. cit., p. 23.

<sup>10</sup>E. M. Rogers, op. cit., pp. 81 - 86.

<sup>11</sup>Ibid.

classified on the basis of innovativeness will be normal. Using the mean and standard deviation of the normal distribution, Rogers has partitioned the continuum of innovativeness into five adopter categories. Individuals are classified as innovators, early adopters, early majority, late majority, or laggards. This is a somewhat arbitrary classification but when utilized by research workers, should lead to a greater standardization of methodology. A diagram of this classification is shown below.

CLASSIFICATION OF INDIVIDUALS ON THE  
BASIS OF THEIR INNOVATIVENESS



KEY

$\bar{x}$  = mean

$\sigma$  = standard  
deviation

A = Innovators

B = Early adopters

C = Early majority

D = Late majority

E = Laggards

Lionberger<sup>12</sup> however, states that for purposes of describing most characteristic differences in relation to innovativeness, a classification into early adopters, late adopters, and intervening (the majority) is sufficient.

#### Characteristics of Adopter Categories

Lionberger,<sup>13</sup> using his simplified division of individuals on the basis of their innovativeness, has summarized the distinctive characteristics of these groups. Early adopters are owners of large farms, have high incomes, are willing to take risks, are usually less than fifty years old, are active seekers of new ideas, and participate in many non-local groups. In contrast, late adopters own small farms, have low incomes, are security minded, are usually over age sixty, are complacent or skeptical, and seldom participate in formal groups. The majority are characterized by average farms, average incomes, age between fifty and sixty, being receptive but not actively seeking new ideas, and participation in some local groups.

There have been many exceptions and additions to these general characteristics. Beal and Rogers<sup>14</sup> found early adopters

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<sup>12</sup>Lionberger, op. cit., pp. 36 -41.

<sup>13</sup>Ibid.

<sup>14</sup>George M. Beal and Everett M. Rogers, The Adoption of Two Farm Practices in a Central Iowa Community, Ames, Iowa, Agricultural and Home Economics Experiment Station, Iowa State University of Science and Technology, June 1961 (Special Report No. 26).

to be older than the later adopters.

Parish<sup>15</sup> noted that farmers who have established themselves within the last decade were the most innovative. He reasoned that the newly-established farmers bring a freshness of outlook to farming and have not had time to harden their attitudes and behaviour into prejudice and habit.

Bailey and Bryant<sup>16</sup> observed that farm families with non-farm income had a higher adoption score than farm families with no non-farm income. Fliegel<sup>17</sup> has reinforced this finding by stating that maximum involvement of family members in the farm work force is associated with a negative attitude towards the use of credit, which was chosen by Fliegel as a representative attitude of technological change. In other words, farmers having non-farm jobs, and thus presumably less involved in the farm operation, tend to be more favourable towards technological change.

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<sup>15</sup>Ross Parish, "Innovation and Enterprise in Wheat Farming," Review of Marketing and Agricultural Economics, vol. 22, no. 3 (September 1954), pp. 189 - 218.

<sup>16</sup>Wilfred C. Bailey and Ellen S. Bryant, Adoption of Homemaking Practices in Alcorn County, Mississippi, State College, Mississippi State University - Agricultural Experiment Station, June 1962 (Progress Report in Sociology and Rural Life, no.25).

<sup>17</sup>Frederick C. Fliegel, "Traditionalism in the Farm Family and Technological Change," Rural Sociology, vol. 27, no. 1 (March 1962), pp. 70 -76.

Other characteristics listed by Rogers<sup>18</sup> as being conducive to innovation were a favourable feeling of the community toward innovators, enjoyment of farming, and ownership (as opposed to renting) of the farm.

### Innovativeness over Time

Findings on the consistency of innovativeness among individuals over time and for different innovations are not conclusive. Beal and Rogers<sup>19</sup> upon observing that farmers who were early adopters of 2,4-D weed spray were also early adopters of antibiotics suggested that an attitude towards a specific new practice is but one part of a more general attitude towards changes in farm technology. Parish<sup>20</sup> also concluded that when farmers' behaviour over the whole field of innovation is examined, they either tend to adopt innovations consistently or consistently fail to do so.

On the other hand, Wilkening et al.<sup>21</sup> state that though there is a tendency for the adoption of a few practices to vary

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<sup>18</sup>Rogers, op. cit., pp. 148 - 192.

<sup>19</sup>Beal and Rogers, loc. cit.

<sup>20</sup>Parish, loc. cit.

<sup>21</sup>E. A. Wilkening, Joan Tully, and Hartley Tresser, "Communication and Acceptance of Recommended Farm Practices Among Dairy Farmers of Northern Victoria," Rural Sociology, vol. 27, no. 2 (June 1962), pp. 116 - 198.



together, this does not hold for most practices. The indication is that the adoption of one practice is not ordinarily related to the adoption of others.

### Characteristics of the Innovation

The inherent characteristics of the innovation itself also play an important role in determining its rate of adoption. Rogers<sup>22</sup> states that the higher the innovation's relative advantage, compatibility, divisibility, and communicability, and the lower an innovation's complexity the more readily it will be adopted. Silverman and Bailey<sup>23</sup> have found that the adoption of a practice may be linked with the use or non-use of other practices. Some practices are complementary in that the adoption of one without the prior adoption of another will result in a lower net return than if both practices had been adopted.

Bradner<sup>24</sup> observed that persons who evaluate an innovation as congruent with a previous favorably evaluated practice will accept the innovation more rapidly than those who fail to

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<sup>22</sup>Rogers, op. cit., pp. 121 - 147.

<sup>23</sup>Leslie J. Silverman and Wilfred C. Bailey, Trends in the Adoption of Recommended Farm Practices. State College, Mississippi State University, Agricultural Experiment Station, April 1961 (Bulletin 617).

<sup>24</sup>Lowell Bradner and Kearn Bryant, "Evaluation for Congruency as a Factor in the Adoption Rate of Innovations", Rural Sociology, vol. 29, no. 3 (September 1964), pp. 288 - 303.

make such an evaluation. He found the congruency factor to be more important in determining the innovativeness of a person than the factors of age, education, and income.

### Sources of Information

Beal and Rogers define sources of information as:

the individuals, organizations, and media which transmit the information about the new practice to the farmers.<sup>25</sup>

Sources of information may be classified by type. Beal and Rogers<sup>26</sup> use four types:

1. Mass media (e.g. magazines, newspapers, radio, T.V.).
2. Agricultural agencies (e.g. extension service, vocational agricultural classes at high school, evening classes).
3. Commercial sources (e.g. dealers, salesmen).
4. Informal (e.g. relatives, friends, neighbours).

Information sources may also be classified by the relationship between the communicator and the communication receiver. Personal sources are those having a direct contact between communicator and communication receiver. These include relatives, friends, neighbours, and extension agents.

Examples of impersonal sources which do not involve

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<sup>25</sup>Beal and Rogers, loc. cit.

<sup>26</sup>Ibid.

face-to-face contact are magazines, newspapers, radio, and T.V. Beal and Rogers also used two residual categories; self (e.g. myself, my own experience, my own trial) and no response (e.g. don't know or no answer).

### Sources of Information and the Stages in the Adoption Process

The various sources of information play roles of differing importance at the different stages in the adoption process. Several general trends were noted by Beal and Rogers;<sup>27</sup> the importance of mass media sources decreased from the awareness to the adoption stage, informal sources increased in importance from the awareness to the evaluation stage and decreased through the trial and adoption stages, the importance of commercial sources increased from the awareness through the trial stage, and agricultural agency sources of information were most important at the awareness stage, then decreased through later stages. In examining personal and impersonal sources, Beal and Rogers found personal sources were most important at the evaluation stage, and least important at the awareness stage, where impersonal sources were most important. Lionberger<sup>28</sup> in his examination of a number of pieces of research generally agrees with these points although he places more stress on informal sources in the trial and adoption stage.

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<sup>27</sup>Beal and Rogers, loc. cit.

<sup>28</sup>Lionberger, op. cit., p. 103.

### Sources of Information and Adopter Categories

The sources of information used by a farmer are also a function of the adopter category in which the farmer falls. Lionberger<sup>29</sup> using his simplified adopter categorization, states that the early adopters tend to use college and other research sources, agricultural agencies, mass media sources, and commercial sources. The majority use adoption leaders, farm papers, magazines, radio, commercial sources, and agricultural agencies in that order. Late adopters use primarily other local farmers and adoption leaders and then farm papers, magazines and radio.

Beal and Rogers<sup>30</sup> have put forward a two-step concept of diffusion of technological information. They state that innovations often flow from the impersonal sources to the earlier adopters and from them to later adopters. Innovators seem to have the ability to utilize impersonal information sources whereas the laggards require more personalized sources.

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<sup>29</sup>Lionberger, loc. cit.

<sup>30</sup>Beal and Rogers, loc. cit.

## CHAPTER II

### METHODOLOGY

The information needed to fulfill the purposes of the study was gathered by interviewing a sample of Okanagan Valley orchardists.

#### I. THE SAMPLE

##### Choosing the Sample

The sample was chosen from the 1960 orchard survey of the Okanagan Valley carried out by the Horticultural Branch of the British Columbia Department of Agriculture. This survey divides the valley into twenty-three districts. A five per cent random sample was chosen from each district within the area covered by the 1964 T. V. Chautauqua. The sample size was limited by the time available from the district horticulturists who carried out the interviews. Random numbers supplied by Fisher and Yates<sup>1</sup> and Tippett<sup>2</sup> were used to choose the sample. A two and one-half per cent sample of alternates was also chosen by the same method. Table I shows the distribution of the sample by district.

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<sup>1</sup>R. A. Fisher and Frank Yates, Statistical Tables for Biological, Agricultural, and Medical Research, London, Oliver and Boyd, 1948.

<sup>2</sup>L. R. C. Tippett, Random Sampling Numbers, London, Cambridge University Press, 1950.

Table I

## DISTRIBUTION OF THE SAMPLE

Number	District Name	Total* Orchardists	Sample
1	Lillooet	9	**
2	Kamloops	53	**
3	Salmon Arm	56	3
4	Armstrong	4	**
5	B.X.	102	8
6	Vernon	40	
7	Coldstream	65	4
8	Upper Arrow Lakes	3	**
9	Oyama	96	5
10	Okanagan Centre and Winfield	159	8
11	Kelowna	467	24
12	Westbank	158	8
13	Peachland	68	4
14	Summerland	336	17
15	Naramata	87	5
16	Penticton	2155	11
17	Penticton West Bench	82	5
18	Kaleden	43	3
19	Okanagan Falls	18	1
20	Keremeos	102	6
21	Cawston	86	5
22	Oliver	334	16
23	Osoyoos	207	12
TOTAL		2790	145

\* from British Columbia Department of Agriculture, Horticultural Branch, Orchard Survey of the Okanagan Valley 1960, undated, mimeo.

\*\* these districts were not studied because they are not within the area covered by the 1964 T.V. Chautauqua.

The sample of orchardists was examined to determine how representative it was of the population (i.e., all growers included in the 1960 Orchard Survey and who were in the area served by the 1964 T.V. Chautauqua).

The 1960 Orchard Survey gives data on the number of growers by district and the variety and number of trees cultivated, by district. Thus, it was possible to obtain the average number of trees per grower overall, by variety, and by district for both the sample and the population.

None of the sample averages corresponded exactly to their respective population averages, although the sample average number of total trees per grower of 860.86 was extremely close to the population average of 857.88 trees per grower. In any case, straight comparisons or differences between means are not too useful. What is needed is a measure to determine whether the difference between the sample and population means is significant (i.e., is the sample mean a valid estimator of the population mean).

The sampling distribution of means from large samples can be approximated by a normal curve. Similarly, the sampling distribution of means from small samples can be approximated by the t-distribution. The normal curve was used in comparison of the sample and population means overall and by variety and the

t-distribution used in comparing sample and population means by district. The means of both of these sampling distributions are equal to the means of the population.

There was no significant difference between the sample and population mean number of all trees per grower. By variety, there was only a significant difference between the sample and population means of the number of East Maling and Maling Merton trees per grower. The results are shown in Table II.

In calculating the means by district, districts were consolidated which had a sample of less than five chosen from them. Significant differences between the sample and population means of the number of trees per grower were found for districts 11, 16, 17-19, and 23. More detailed data are shown in Table III.

## II. PROCEDURE

The actual interviewing of the sample was carried out during the week of April 13 to 17, 1964 by the district horticulturists resident in the Okanagan Valley after a short training course at Kelowna on April 13. The interviewers were instructed to interview the decision maker on the orchard (i.e., the person responsible for the adoption or non-adoption of innovations). The questions were to be asked in the same order and using the same wording as given on the interview schedule. Alternate



Table II

COMPARISONS OF SAMPLE AND POPULATION MEAN NUMBER OF TREES  
PER RESPONDENT OVERALL AND BY VARIETY

Variety of Trees	Sample Mean	Population Mean	z Value
All varieties	860.86	857.88	0.1249
Summer apples	9.92	9.09	0.3036
Winter apples	362.65	338.56	0.6008
East Maling and Maling Merton	60.58	94.51	<u>-2.9903</u>
Other apples	3.11	3.13	-0.0139
Crab-apples	3.90	3.22	0.5058
Pears	163.06	139.64	0.7138
Peaches	130.70	118.54	0.6592
Apricots	44.45	52.60	-1.2421
Cherries	50.22	59.38	-1.3742
Prunes	31.23	37.83	-0.9795
Plums	1.05	1.38	-1.2031

NOTE: The underlined value indicates a difference between the sample and population means. The significance test was carried out using the null hypothesis that the sample mean is equal to the population mean and a .05 level of significance (i.e., if we state the sample mean is not a valid estimator of the population mean, there is a five per cent chance that, in fact, the sample mean is a valid estimator). The criterion used to test the null hypothesis was to reject the hypothesis (i.e., state that there is a difference between the sample and population means) if  $Z < -1.96$  or  $Z > 1.96$  and accept the hypothesis if  $-1.96 \leq Z \leq 1.96$  where  $Z = \frac{\bar{x} - \mu}{S/\sqrt{n}}$  ( $\mu$  = population mean,  $\bar{x}$  = sample mean,  $S$  = standard deviation of the sample,  $n$  = sample size).

Table III  
COMPARISONS OF SAMPLE AND POPULATION MEAN NUMBER OF  
TREES PER RESPONDENT BY DISTRICT

Number	District Name	Sample Mean	Population Mean	t Value	t .025*
3,5,6	Salmon Arm,B.X. and Vernon	855.00	680.83	1.2576	2.228
7,9	Coldstream and Oyama	677.33	825.57	-1.0179	-2.306
10	Okanagan Center and Winfield	2,083.50	900.93	1.0205	2.365
11	Kelowna	785.21	1,097.00	<u>-2.7033</u>	-2.069
12,13	Westbank and Peachland	1,294.58	925.22	1.7684	2.201
14	Summerland	576.18	659.98	- .7156	-2.120
15	Naramata	649.60	899.77	-1.3503	-2.776
16	Penticton	479.36	792.32	<u>-3.3874</u>	-2.228
17,18 19	Penticton, West Bank, Kaleden, Okanagan Falls	246.67	562.33	<u>-4.0248</u>	-2.306
20	Keremeos	789.17	635.37	.9685	2.571
21	Cawston	831.20	1,026.57	- .6355	-2.776
22	Oliver	1,280.75	878.46	1.8466	2.131
23	Osoyoos	629.83	988.51	<u>-3.5237</u>	-2.201

NOTE: Underlined values indicate differences between population and sample means. A .05 level of significance was used to test the null hypothesis that the sample mean is equal to the population mean. The criterion used in testing the null hypothesis was to reject the hypothesis if  $t < -t.025$  or  $t > t.025$ , accept the hypothesis if  $-t.025 \leq t \leq t.025$  where  $t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$  ( $\bar{x}$  = sample mean,  $\mu$  = population mean,  $s$  = standard deviation of the sample,  $n$  = sample size),  $t.025$  is given using  $n-1$  degrees of freedom.

\* from Table 2 of J. F. Freund and F. J. Williams, Modern Business Statistics, Englewood Cliffs, Prentice-Hall, 1958.

names were provided in case one of the names drawn in the sample was unable to be interviewed. Each respondent was to be visited at least three times before using an alternate; with at least one of the first three visits being in the evening.

The data were recorded on interview schedules prepared for the study (see Appendix IV). Altogether, information was gathered from 145 orchardists.

### III. KINDS OF DATA GATHERED

In order to fulfill the purposes of this study, data were collected with respect to the personal characteristics of the respondents, their sources of information, their stage of adoption of certain innovations, and their reaction to the 1964 T.V. Chautauqua.

#### Personal Characteristics

All personal characteristics which were thought to influence the rate of adoption of an orchardists were included. Specifically, data were gathered on the respondent's age, educational level, attendance at specialized educational courses (agriculture courses in high school and at university, adult courses in agriculture and in other subjects, the district hall chautauqua, and discussion groups with district horticulturists), enjoyment of orchardings; subscription to newspapers etc;

level of social participation (number of organizations belonged to, attended, and supported financially,<sup>1</sup> committee memberships, and offices held<sup>2</sup>); years in agriculture, orcharding and on present orchard; and full-time or part-time occupations.<sup>3</sup>

Data were also gathered on the respondent's size of enterprise, acres in orchard, enterprise value,<sup>4</sup> tenure status, relation of non-agricultural income to agricultural income, and total value of orchard products sold in 1962.<sup>5</sup>

The willingness of their community to adopt new farm practices, the community regard of innovators, and the community regard of laggards were sought from each respondent because of the possible influence of these factors on adoption.

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<sup>1</sup>Organizations belonged to, attended, and supported financially were those of a service, civic, fraternal, etc. nature and not a church per se or the B.C. Fruit Growers Association.

<sup>2</sup>Committee memberships and offices held included those in the B.C. Fruit Growers Association.

<sup>3</sup>Fruit growing was considered a part-time occupation if the respondent had any other job for which he received income.

<sup>4</sup>This question was worded in such a way to try and obtain a realistic price for the orchard and not one based on speculative land values.

<sup>5</sup>1962 was selected as the year to ask for total value of orchard products sold because it was thought that the respondents would have this information readily available from their income tax returns.

### Sources of Information

Sources of information were sought under two categories. The first was the source or sources of information used by each respondent at each stage in the adoption process. Also the sources of information were sought which each of the respondents used in working towards adoption of each of the specified innovations.

### Innovations

Respondents were questioned on two groups of innovations. The first was specific new practices introduced to the orchard industry during the last five years (excluding those introduced on the 1964 T.V. Chautauqua). The second was those practices introduced primarily on the 1964 T.V. Chautauqua. The groups were compiled by sending letters to all persons who had taken part in the 1964 T.V. Chautauqua asking for innovations falling into these two categories. In order to eliminate one of the barriers to innovation, high cost, only those practices were included on the interview schedule which were either cost saving or equal in cost to the previous practice. Using the five stages in the adoption process: awareness, interest, evaluation, trial, and adoption, respondents were asked to name the stage at which they were for each innovation.

Although six innovations were included in each group on the interview schedule, some of these had to be eliminated during analysis. Bulk-bin handling of fruit during harvest and the use of certified nursery stock were both eliminated from the pre-chautauqua group because the decision to adopt these practices was not always made by the grower. In many cases only bulk-bins were available from the packing house. Also, some nursery operators only carried certified nursery stock and many respondents adopted this practice without being aware of it. In the chautauqua innovations, spraying of Urea and Zinc to control powdery mildew on young apples trees, use of fixed copper sprays for fire blight control, and two by three planting pattern for dwarf apple trees were all found to be innovations applicable to only certain varieties of fruit trees and hence could not be used as a true measure of adoption for all respondents.

#### T. V. Chautauqua

Data were also gathered concerning the effectiveness of the 1964 T.V. Chautauqua. Respondents were asked whether they had a working television set, if they watched the 1964 T.V. Chautauqua, the specific days they watched, the length of time they watched, if anyone watched the chautauqua with them, their

personal reaction<sup>6</sup> to the programs, and if they found the time of year, time of day, and length of program suitable.

A true-false test of the content of the chautauqua was used to measure the respondents' understanding of the chautauqua overall, by program, and by program segment. Three questions were made up on each program segment, making nine per program and forty-five overall.

#### IV. ANALYSIS OF DATA

The interview schedules were pre-coded for processing of the data by the IBM 7040 computer of the U.B.C. Computing Center.

Since the data were from a sample of Okanagan Valley orchardists, tests of significance were carried out on all relationships. In other words, all relationships were examined to see if they were due to chance alone or whether the relationship was, in fact, true for all orchardists.

For each test of significance, a null hypothesis of no difference was formulated and tested at a .05 level of significance. This means that if we state there is a difference present there is a five per cent chance that in reality, there is no difference. Several statistical methods were used to test for significance. These were:

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<sup>6</sup> Respondents' personal reactions to the T.V. Chautauqua were tested using an evaluation scale modified from one used in J. M. Welch, An Evaluation of Three Adult Education Methods for Disseminating Trade Information to Missouri Restaurant Owners, Unpublished Ph.D. dissertation, Florida State University, 1961.

Chi square. This test is used on contingency tables and compares the observed frequencies with the frequencies expected if the null hypothesis was true.<sup>7</sup>

Coefficient of determination. The coefficient of determination measures the variance of a single dependent variable which is explained by the variance of one or a combination of independent variables. The relative importance of each of the independent variables is shown by their regression coefficients.

Partial correlation. The partial correlation coefficient measures the strength of the correlation between one independent and one dependent variable while the effects of all other independent variables are held constant.

F test The F test is used for testing the differences between means of classes. Two variances are calculated (the variance within classes and the variance between classes) which may be regarded as estimates of the same unknown population variance. If the null hypothesis of no difference

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<sup>7</sup> Although many tables show percentages, significance tests were carried out on absolute values and percentages are shown to simplify comparisons.



between means is true, then the same factors that cause variation within classes will be responsible for the variation between class means and the two calculated variances will be equal.

## V. PLAN OF THE STUDY

In the report of the study which follows, the characteristics of the sample are first analysed. Following this, the respondents are divided into adopter categories on the basis of their innovativeness. Significant differences between adopter categories and factors affecting adoption are noted.

In Chapter V, sources of information are examined for their use by stages in the adoption process, by adopter category, and for the specified innovations. Following this, the rates of adoption of the specified innovations are compared. Also, differences between adopter categories in their rate of adoption of each innovation are noted.

Chapter VII is an analysis of those watching the T.V. Chautauqua, a comparison of the T.V. Chautauqua with other educational gatherings, and an evaluation of the effectiveness of the chautauqua through the use of the true-false test.

The final chapter is devoted to a summary of the study, relevant conclusions drawn from it, and the limitations of the study.

## CHAPTER III

### CHARACTERISTICS OF THE SAMPLE

#### I. DISTRIBUTION OF SOCIOECONOMIC CHARACTERISTICS OF THE SAMPLE

Detailed tables showing the percentage distributions of the socioeconomic characteristics of the sample are available in Appendix I. The most pertinent points will be commented on here.

##### Personal Data

Age. The median category of age was forty-five to fifty-four years. The age distribution was skewed towards the older age groups as there were few respondents ( 10.4 per cent) less than thirty-five years of age and a large percentage (38.6 per cent) over fifty-four years.

Education. The median level of education was nine to eleven years. Approximately thirty-seven per cent of the respondents had obtained at least junior matriculation or its equivalent.

Attendance at specific educational gatherings. The most popular agricultural courses offered to orchardists were those in high school which were attended by 14.7 per cent of the respondents. Adult courses in agriculture drew 13.1 per cent of the respondents but only 7.7 per cent had attended university

agriculture courses. Forty per cent of the respondents attended adult courses in subjects other than agriculture. On a more informal level, 63.4 per cent of the respondents attended the district hall style of chautauqua and 64.1 per cent attended discussion groups with their district horticulturist and other orchardists.

Subscriptions to newspapers and magazines. A large number of magazine and newspaper subscriptions have been taken out by the respondents. Ninety per cent subscribe to at least one local newspaper and 84.6 per cent regularly receive at least one farm magazine other than "Country Life".

Enjoyment of orcharding. Most fruit growers enjoyed their occupation with 79.3 per cent enjoying orcharding very much and only 1.4 per cent not enjoying orcharding at all.

Social participation. There was generally a low level of social participation among respondents. The median number of organizations attended, belonged to, and contributed to financially was only one. Also, the majority of respondents did not belong to any committees nor hold any offices of organizations.

Years in orcharding. Most of the respondents have been orchardists for many years. The majority have worked in the agricultural industry for over twenty years. For the number of

years as an orchardist and for the number of years on the present orchard, the median category is ten to nineteen years.

Occupation and income. The majority of respondents were full-time orchardists. That is, they did not have income from any other sources. For those respondents who did have other income, the most popular occupations were other forms of agriculture, managerial positions, and craftsmen, production process, and related workers.

Examining the relationship of respondents' agriculture income to non-agriculture income shows that slightly over half had no income from sources other than agriculture. However, about one-quarter had non-agriculture income twice as much or greater than their agriculture income.

### Orchard Information

Size of enterprise and orchard. The median size of enterprise was ten to nineteen acres. However, approximately seven per cent of the enterprises were less than three acres and two per cent were over 180 acres.

The same type of distribution is noted for the number of acres in orchard where the median category is again ten to nineteen acres.

Enterprise value. The median category of enterprise value was \$14,950 to \$24,949. Almost twenty per cent of the enterprises were worth over \$49,950.

Tenure of operator. Almost ninety per cent of the respondents completely owned their orchard.

Value of orchard products sold. The median category of sales value was \$3750 to \$4999. Notable is the fact that 18.1 per cent of the respondents sold less than \$1200 worth of orchard products.

### Community Data

Three questions were asked about the community in which each respondent lived and the results showed a generally favorable environment for adoption. Sixty-five per cent of the respondents felt that their community was willing to adopt new farm practices while only 5.6 per cent felt that their community was not very willing to adopt new farm practices. When asked how their community regarded people who try many new practices, 72.5 per cent responded that their community felt favourably towards these innovators. Conversely, only 4.3 per cent felt that their community had a favourable regard of laggards, 63.1 per cent felt their community had no feeling towards laggards, and 32.6 per cent thought that their community regarded laggards unfavourably.

## II. PARTIAL CORRELATION COEFFICIENTS OF SOCIOECONOMIC CHARACTERISTICS

Partial correlation coefficients which show the relationship between two variables while holding the effects of all

TABLE OF PARTIAL

## CORRELATION COEFFICIENTS

Table IV

NOTE: Underlined coefficients show a high degree of association. The test of association was carried out using the null hypothesis of no correlation and a .05 level of significance. The test is based on the assumption that under the null hypothesis of no correlation the sampling distribution of the correlation coefficient can be approximated closely with a normal curve having the mean 0 and the standard deviation  $1/\sqrt{n-1}$  where  $n$  = the sample size. Therefore the criterion is to reject the null hypothesis if  $r < -1.96/\sqrt{n-1}$  or  $r > 1.96/\sqrt{n-1}$  (i.e. if the partial correlation coefficient is less than -.1633 or greater than .1633).

Age	Age	Education	Enjoyment of orcharding	Organizations belonged to	Organizations attended	Organizations contributed to	Committees belonged to	Offices held	Years in agriculture	Years in orcharding	Years on present orchard	Size of enterprise	Acres in orchard	Value of enterprise	Relation of non-ag income to ag income	Sales of orchard products	Willingness of community to adopt	Community regard of adopters	Community regard of laggards
1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Education	.1187	1.0000																	
Enjoyment of orcharding	.0810	.0730	1.0000																
Organizations belonged to	-.0198	.2967	-.0554	1.0000															
Organizations attended	.0650	-.1981	.0242	.8277	1.0000														
Organizations contributed to	.1088	.0476	.0953	-.0076	.2611	1.0000													
Committees belonged to	-.0490	.1273	-.0058	.0902	.2099	-.0894	1.0000												
Offices held	-.0350	-.1418	.0430	.1767	-.0844	-.0495	.5179	1.0000											
Years in agriculture	.0310	-.2216	-.0843	.0873	-.0701	-.0901	.0601	-.0745	1.0000										
Years in orcharding	.0760	.0915	-.0555	-.0203	-.0343	-.0564	.0228	.0875	.4518	1.0000									
Years on present orchard	-.0368	-.0921	-.0542	-.0460	.0839	-.0138	.0840	-.0721	-.0663	-.5599	1.0000								
Size of enterprise	-.1388	.1143	.1529	-.0483	.0091	.0419	-.0536	.2035	.0908	-.0392	.1366	1.0000							
Acres in orchard	-.0462	.0685	-.0428	.0921	-.0500	.0376	-.0397	.1436	.0181	.0112	.0949	.3629	1.0000						
Value of enterprise	.1543	-.1038	-.1367	.0257	-.0063	-.0056	.0291	-.0165	.0413	.0054	-.0099	.2366	.0515	1.0000					
Relation of non-ag income to ag income	.1261	-.2031	-.0538	-.0853	.0379	-.0579	.0986	-.1402	-.0092	.2123	-.1533	.0406	.0398	.1047	1.0000				
Sales of orchard products	.1943	.0862	.1125	-.0005	-.0064	-.0839	-.0824	.2160	.1055	-.0869	.0761	-.0727	.4616	.3200	.2364	1.0000			
Willingness of community to adopt	.0573	.1131	.0091	-.1506	.0803	-.0421	-.0115	.0719	.0024	-.0738	.0229	-.0545	.0755	.0720	-.0779	1.0000			
Community regard of adopters	.0486	.0014	-.1072	.0617	-.0244	.0531	-.0801	.1164	.1519	.0222	.0124	-.0430	-.0164	.0641	.0525	.5410	1.0000		
Community regard of laggards	-.0605	-.0483	.1439	-.0035	.0172	-.0036	.0127	-.0796	-.0383	.1155	.0297	-.0608	-.1110	-.0508	.0845	.1727	-.0047	1.0000	
																			1.0000

other variables constant were calculated between all pairs of socioeconomic characteristics which could be quantified. These are shown in Table IV.

For the social participation indicators there were the expected correlation coefficients showing high degrees of association with each other. For instance, the number of organizations belonged to, the number of organizations contributed to, and the number of committee memberships were associated with each other. Also, the number of offices held is highly associated with the number of organizations belonged to and the number of committee memberships held.

Two surprising coefficients indicating high degrees of association are those between education and number of organizations belonged to and education and organizations attended. The first relationship shows a positive correlation and the second a negative one. This indicates that the more educated respondents belonged to more organizations but attended less than those with a lower level of education.

The number of offices held was significantly positively correlated with the size of enterprise and the value of sales indicating that the larger orchardists participate more in organizations than those with smaller orchards.

There are positive correlations which show high association between years in orcharding and years in agriculture

and also between years on the present orchard and years in orcharding. These are expected. The interesting correlation is the negative one between education and years in agriculture. This indicates that the respondents who have been in agriculture many years have a lower educational level than the newer entrants to the industry. In other words, the average educational level of people in agriculture is increasing.

Significant positive correlations between size of enterprise and acres in orchard and also between size of enterprise and value of enterprise were found, meaning simply, that the larger enterprises had more acres in orchard and were worth more.

Correlation of the given variables with the relationship of agriculture income to non-agriculture income for all respondents results in a significant negative association with education and a significant positive association with years in orcharding and sales of orchard products. The importance of this is that those orchardists with a higher educational level tend to have more income from non-agricultural work than those with a lower level of education. Also, orchardists having been many years in fruit-growing and those having high sales of orchard products receive most of their income from agriculture.

The variable, sales of orchard products, was also positively associated with a number of other variables; namely,



age, acres in orchard, value of enterprise, and community regard for laggards. Thus, those respondents with a high value of fruit sold were older, had more acres in orchard, and had more valuable enterprises than the majority of respondents. These respondents also felt that their community regarded people who are slow in adopting orchard practices unfavourably.

The unfavourable regard of laggards by the community was further associated with a favourable regard of the adopters by the community. A high regard of adopters was, in turn, associated with an above-average willingness of the community to adopt new farm practices.

All other partial correlation coefficients did not show high degrees of association at the .05 level of significance.

## CHAPTER IV

### THE ADOPTER CATEGORIES

The respondents were divided into adopter categories on the basis of their innovativeness. Chi square, multiple regression, and partial correlation analyses were then carried out to discern the differences between adopter categories.

#### I. DIVISION OF THE RESPONDENTS INTO ADOPTER CATEGORIES

All respondents were given a percentage score on the basis of their progress towards adoption of the specified innovations. A respondent who fully adopted all innovations would receive an adoption score of one hundred per cent while one not aware of any of the innovations would receive an adoption score of zero per cent.

The respondents were then divided into adopter categories using the method proposed by Rogers.<sup>1</sup> The distribution of adoption scores was found to approximate a normal curve.<sup>2</sup> The standard deviation of the distribution was 20.085 per cent and the mean 50.814 per cent.

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<sup>1</sup>E. M. Rogers, Diffusion of Innovations, New York, Free Press, 1962, p. 162.

<sup>2</sup>The chi square test was used with the null hypothesis that the distribution approximated a normal curve and a .05 level of significance.

Using these two statistics, it was possible to divide the respondents into adopter categories. Innovators were all those having an adoption score greater than the mean score plus two standard deviations, early adopters have an adoption score greater than the mean plus one standard deviation but less than two standard deviations; a member of the early majority has a score greater than the mean but less than the mean plus one standard deviation; the late majority have scores less than the mean but greater than the mean minus one standard deviation; and laggards have scores less than the mean minus one standard deviation. The distribution of the respondents into these adopter categories is shown in Table V.

Because of the small number of innovators, innovators and early adopters were grouped together for purposes of analysis.

## II. CHI SQUARE ANALYSIS OF THE DIFFERENCES BETWEEN ADOPTER CATEGORIES

Chi square values for the distribution of each socio-economic characteristic were calculated using four adopter categories (1. innovators and early adopters, 2. early majority, 3. late majority, and 4. laggards) and also using two adopter categories (1. innovators, early adopters and early majority, and 2. late majority and laggards). These are shown in Table VI. Complete percentage distributions by adopter category for the significant variables are in Appendix I.

Table V  
CLASSIFICATION OF RESPONDENTS INTO ADOPTER  
CATEGORIES

Adopter Category	Bound- aries	Number of Standard Deviations from the Mean	Respondents in Category	
			Number	Per Cent
	%			
Innovators	91.004	+2	1	0.7
Early adopters	70.909	+1	19	13.1
Early majority	50.814	0	59	40.7
Late majority	30.720	-1	43	29.7
Laggards			23	15.9
TOTAL			145	100.0

Table VI

CHI SQUARE VALUES BETWEEN ADOPTER CATEGORIES  
FOR VARIOUS SOCIOECONOMIC DATA

Socioeconomic data	Chi square value	
	Using 4 adopter categories	Using 2 adopter categories
Age	6.069	3.754
Education	8.667	2.218
Agriculture course in high school	0.992	0.317
Agriculture courses at university	*	<u>4.035</u>
Adult courses in agriculture	<u>11.996</u>	1.003
Adult courses in other subjects	2.471	0.617
Attendance at district hall chautauqua	<u>13.389</u>	<u>7.213</u>
Attendance at district horticulturist discussion groups	<u>14.662</u>	<u>4.031</u>
Enjoyment of orcharding	<u>10.794</u>	1.896
Subscription to newspapers	2.302	0.835
Subscription to magazines	1.641	0.217
Organizations belonged to	6.607	5.021
Organizations attended	3.775	4.516
Organizations contributed to financially	17.397	5.752
Committees belonged to	5.558	1.674
Offices of organizations held	5.491	2.495
Years in agriculture	6.765	5.863
Years on present orchard	<u>12.646</u>	<u>9.983</u>
Years in orcharding	<u>13.029</u>	<u>8.556</u>
Occupation	<u>19.578</u>	<u>14.658</u>
Size of enterprise	12.527	14.206
Acres on orchard	<u>41.339</u>	<u>27.382</u>
Value of enterprise	<u>17.664</u>	<u>13.161</u>
Tenure	<u>8.127</u>	3.521
Relation of non-ag.income to ag.income	10.841	<u>11.584</u>
Sales value	<u>37.824</u>	<u>49.609</u>
Willingness of community to adopt	3.165	0.301
Community regard of adopters	4.554	2.430
Community regard of laggards	3.752	2.723
Personal reaction to TV Chautauqua	11.665	<u>11.298</u>

NOTE: Underlined values are significant. A null hypothesis of no difference in proportions between adopter categories was used with a .05 level of significance.

\* too many low cell frequencies to carry out a chi square analysis.

Differences between adopter categories as indicated by the chi square values will be commented upon in order.

#### Agriculture courses at university

Thirteen per cent of the earlier adopters attended agriculture courses at university while only two per cent of the later adopters reported such attendance.

#### Adult courses in agriculture

There was a relationship between attendance at adult courses in agriculture and the rate of adoption. Forty-two per cent of the innovators and early adopters attended adult courses in agriculture while only seven per cent of the early majority, seven per cent of the late majority, and thirteen per cent of the laggards did.

#### Attendance at the district hall chautauqua

A direct correlation between attendance at the district hall chautauqua and percentage adoption of the selected innovations is evident. Eighty-five per cent of the innovators but only twenty-five per cent of the laggards attended the district hall chautauqua.

#### Discussion groups with the district horticulturist

There also appeared a relationship between attendance at discussion groups with the district horticulturist and percentage adoption of the selected innovations. Ninety per cent of the innovators attended these discussions but only twenty-two per

cent of the laggards did.

### Enjoyment of orcharding

The enjoyment of orcharding was another characteristic associated with innovativeness. Ninety-five per cent of the innovators and early adopters enjoyed orcharding very much while thirty-nine per cent of the laggards only enjoyed orcharding occasionally and four per cent of these slow adopters did not enjoy orcharding at all.

### Years in orcharding

A general trend of the higher adopters being the longest in orcharding was evident. The highest percentage in the twenty years or over grouping was the early majority category. The second highest percentage in the twenty years or over grouping was found with the innovator and early adopter category. At the other end of the scale, the largest percentage in the less than five years was found with the laggards. However, the next largest percentage for this new orchardist group were the innovators and early adopters.

### Years on present orchard

A significant chi square was found using two categories of adopters only. Again, there was a general trend towards the earlier adopters being on the orchard longer. Thirty-three per cent of the faster adopters (as compared with fifteen per cent of the slower adopters) have been on their present orchard for

twenty or more years. Eight per cent of the slower adopters (as compared to one per cent of the faster adopters) have been on their present orchard less than one year.

### Occupation

Several important trends between adopter categories are evident here. Ninety per cent of the innovators and early adopters are full-time orchardists, while only thirty per cent of the laggards are full-time orchardists. The same trend is followed by the early majority and the late majority categories, with the early majority having seventy per cent full-time orchardists and the late majority fifty-one per cent full-time orchardists.

An inverse relationship between adoption and employment in other types of agriculture is evident; similarly for managerial, clerical and sales, loggers, fishermen, miners, and related workers, and those with no full-time occupation. In all of these jobs there were no innovators and early adopters and in each, laggards made up the largest percentage. The only occupational relationship showing any direct relationship with adoption was the professional and technical class. Here were found ten per cent of the innovators and early adopters but none of the laggards.

### Size of enterprise

A general trend towards the earlier adopters having



larger enterprises was shown. For all classifications above nine acres except forty-five to fifty-four acres, there were larger percentages of the earlier adopters than the later ones.

#### Acres in orchard

The median classifications of acreages for the earlier adopters were larger than for the later ones. Generally, the larger acreages are in the early majority category and the smaller ones in the laggard category.

#### Value of enterprise

One of the most distinct distributions is in the classification of enterprise value by adopter category. Most of the enterprises of greatest value are operated by innovators and early adopters and most of the least valuable enterprises are operated by laggards. All of the other classifications by value follow the same pattern.

#### Tenure

Two interesting relationships are apparent in the tenure status of the operators. The largest number of part owners and part renters are in the innovator and early adopter category while all of the laggards completely own their orchards. The early majority and late majority categories follow intermediate distributions.

### Relationship of non-agriculture income to agriculture income

Generally, earlier adopters have less income from sources other than agriculture than do the later adopters. For the classifications half as much or less income from other sources and no income from other sources there are greater percentages of the earlier adopters than the later adopters. For every other classification, from less than but greater than half as much income from other sources to twice as much or greater income from other sources, the reverse is true, with greater percentages of the slower adopters than the faster ones.

### Sales value of orchard products

There is a distinct correlation of value of sales with adoption. The majority of the laggards have less than \$1200 in sales of orchard products while the majority of innovators and early adopters have \$5000 to \$9999 in sales. The early majority and late majority categories are in intermediate positions.

### Personal reaction to the T.V. Chautauqua

The median reaction to the T.V. chautauqua is the same for all respondents. However, there is a slight difference in the weighted average of the reaction toward the chautauqua with the earlier adopters feeling more favourable towards the chautauqua than the later ones.

### III. REGRESSION AND CORRELATION ANALYSES OF THE DIFFERENCES BETWEEN ADOPTER CATEGORIES

A multiple regression of several independent variables was carried out on adoption percentage. The results are shown in Table VII.

Table VII

#### MULTIPLE REGRESSION ANALYSIS OF SELECTED INDEPENDENT VARIABLES ON ADOPTION PERCENTAGE

Variable name	Regression coefficient	F ratio
Education	0.9265	3.1996
Enjoyment of orcharding	5.7182	2.5973
Organizations belonged to	-1.5164	0.2825
Organizations attended	1.6442	0.3530
Organizations contributed to financially	0.8299	1.9349
Years in orcharding	0.1670	0.6907
Size of orchard, in acres	-0.1167	1.2088
Value of enterprise	0.0002	2.5881
Relation of non-ag.income to ag.income	1.3715	2.5191
Sales value of orchard products	0.0009	<u>5.0128</u>
Coefficient of determination:		0.246

NOTE: Underlined value indicates a high degree of association.

Using the F ratio to test the null hypothesis that there is no correlation between the dependent variable (percentage adoption) and the selected independent variables, sales value is the only independent variable highly associated at the .05

level. When sales value by itself is regressed against adoption percentage, a coefficient of determination of .143 is obtained. This means that 14.3 per cent of the variation in adoption percentage may be explained by variation in sales value.

Another possible analysis is through the use of partial correlation coefficients which measure the strength of the correlation between one independent and one dependent variable while the effects of all other independent variables are held constant. The results are shown in Table VIII, which indicates that only two independent variables, sales value and enjoyment of orcharding, have a high degree of association with adoption percentage.

Table VIII

PARTIAL CORRELATION COEFFICIENTS BETWEEN  
SELECTED VARIABLES AND ADOPTION PERCENTAGES

Variable Name	Partial Correlation Coefficient
Age	-.0077
Education	.1502
Enjoyment of orcharding	<u>.1752</u>
Organizations belonged to	-.0204
Organizations attended	.0651
Organizations contributed to financially	.1089
Committees belonged to	-.0490
Offices of organizations held	-.0347
Years in agriculture	.0319
Years in orcharding	.0759
Years on present orchard	-.0330
Size of enterprise	-.1389
Acres in orchard	-.0469
Value of enterprise	.1545
Relation of non-ag. income to ag. income	.1254
Sales value of orchard products	<u>.1931</u>
Willingness of community to adopt	.0576
Community regard of adopters	.0473
Community regard of laggards	-.0595

NOTE: Underlined values indicate high degree of association.  
For the tests of significance a null hypothesis of no  
correlation was used with a .05 level of significance.

## CHAPTER V

### SOURCES OF INFORMATION

Sources of information have been analysed under several categories; source use by stages in the adoption process, source use by adopter categories, and source use for each of the specified innovations.

#### I. DEFINITION OF CLASSIFICATIONS

For purposes of analysis, the sources of information were classified in three ways: by type, method, and contact. Classification by type was carried out on the basis of what kind of organization was responsible for the information and to whom the information was made available. The general scheme of classification on the basis of the source type may be summarized as follows:

Mass media: produced by agricultural or non-agricultural organizations and available to the general public or a generalized segment of it as distinct from discrete or specifically defined groups of the population.

Agricultural agencies: sources sponsored by organizations primarily concerned with agriculture and available almost exclusively to farmers.

Commercial: those sources sponsored by organizations with which the farmer has business transactions.

Informal: sources of information not produced by any organization and mainly available to the farmer on an individual basis.

Classification by method is primarily on the basis of the size of the group to which the information source is directed. Definitions of the classifications are:

Mass: sources of information which contact large numbers of farmers at any one time.

Group: sources which deal with more than one but less than the majority of farmers at one time.

Individual: sources which deal with orchardists individually.

The third method of classification, by the degree of contact with the orchardist, is given below.

Impersonal: sources which do not involve a large amount of direct, face-to-face contact between the communicator and communication receiver.

Personal: sources which depend on direct, face-to-face contact between communicator and communication receiver, and in which the receiver can extensively question the communicator.

A complete classification of the sources of information used is shown in Table IX.

Table IX

## CLASSIFICATION OF SOURCES OF INFORMATION

Source of Information	Classification by:		
	Type	Method	Contact
Magazines	M	M	I
Newspapers	M	M	I
Radio	M	M	I
Television	M	M	I
B.C. Dept. of Agriculture Publications	M	M	I
Federal Dept. of Agriculture Pub.	M	M	I
T.V. Chautauqua	M	M	I
District hall chautauqua	A	G	I
District horticulturist discussion groups	A	G	P
Agric. meeting and Adult Educ. courses	A	G	I
Vocational agriculture courses	A	G	P
University courses in agriculture	A	G	P
Field days	A	G	I
Summerland research station	A	I	P
Co-operatives	C	I	P
U.B.C.	A	I	P
B.C. Tree Fruits Limited	C	I	P
B.C. Fruit Growers' Association	A	I	P
Packing houses	C	I	P
Foreign travel	I	I	P
Salesmen or dealers	C	I	P
District horticulturist	A	I	P
Employees	I	I	P
Vocational agriculture teacher	A	I	P
Neighbours	I	I	P
Other orchardists	I	I	P
Relatives	I	I	P

	<u>Type</u>	<u>Method</u>	<u>Contact</u>
<u>KEY</u>	M: mass media	M: mass	P: personal
	A: agricult. agencies	G: group	I: impersonal
	C: commercial	I: individual	
	I: informal		



## II. SOURCES OF INFORMATION USED BY STAGE IN THE ADOPTION PROCESS

Using the three classifications of information sources, comparisons were made of the use of sources between the stages in the adoption process for all respondents and for each adopter category. Significant differences in source use between the stages in the adoption process are noted for all respondents and all adopter categories when sources of information are classified by type or method. For the classification by degree of contact only laggards do not show a significant difference in their sources used between adoption stages. The percentage breakdowns for these comparisons are given in Appendix II. Significant relationships are shown by the chi square values in Table X.

The chi squares signify the differences in source use through the different stages in the adoption process for all respondents and each adopter category. A significant chi square shows that any differences in use of sources of information between the stages in the adoption process is not due to chance. Chi square values which are not significant indicate chance variations.

If we refer to Figures 1 to 3 which are simply graphs of tables in Appendix II, the chi square values indicate whether

Table X

CHI SQUARE VALUES FOR COMPARISONS OF SOURCE OF  
INFORMATION USED BY STAGES IN THE ADOPTION PROCESS

Adopter Category	Classification of information sources by:		
	Type	Method	Contact
All respondents	<u>167.694</u>	<u>200.118</u>	<u>137.369</u>
Innovators and early adopters	<u>61.489</u>	<u>45.149</u>	<u>30.663</u>
Early majority	<u>211.839</u>	<u>100.888</u>	<u>56.131</u>
Late majority	<u>149.792</u>	<u>67.563</u>	<u>58.275</u>
Laggards	<u>25.705</u>	<u>23.371</u>	4.807

NOTE: Underlined values are significant. The chi square tests were carried out using the null hypothesis of no differences in the use of sources of information between the stages in the adoption process for each adopter category and a .05 level of significance.

or not the slopes of the lines are significant. Detailed analyses are given below.

Source use by type

There is a decline in the use mass media between the awareness and interest stages with a slight increase, for most adopter categories, at the trial stage. Agricultural agencies generally increase in importance between the awareness and the interest stages but show a tendency to decline in importance during adoption. Little variation over the stages in the adoption

FIGURE ONE

Percentage use of information source types by stages in the adoption process

KEY

All Respondents  
Innovators and  
Early Adopters  
Early Majority  
Late Majority  
Laggards

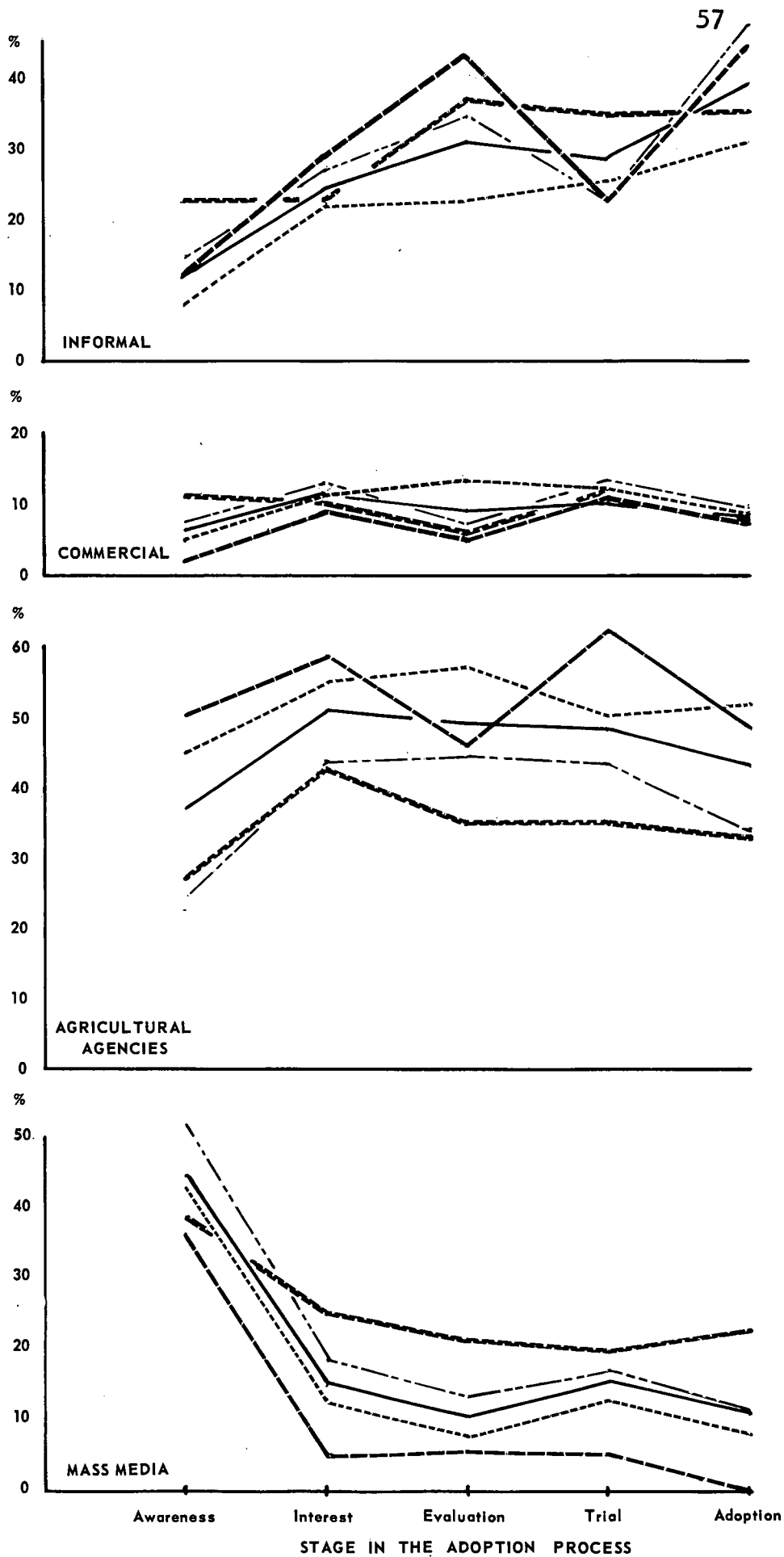
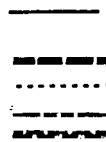


FIGURE 2

Percentage use of information source methods by stage in the adoption process

## KEY

All Respondents  
Innovators and  
Early Adopters  
Early Majority  
Late Majority  
Laggards

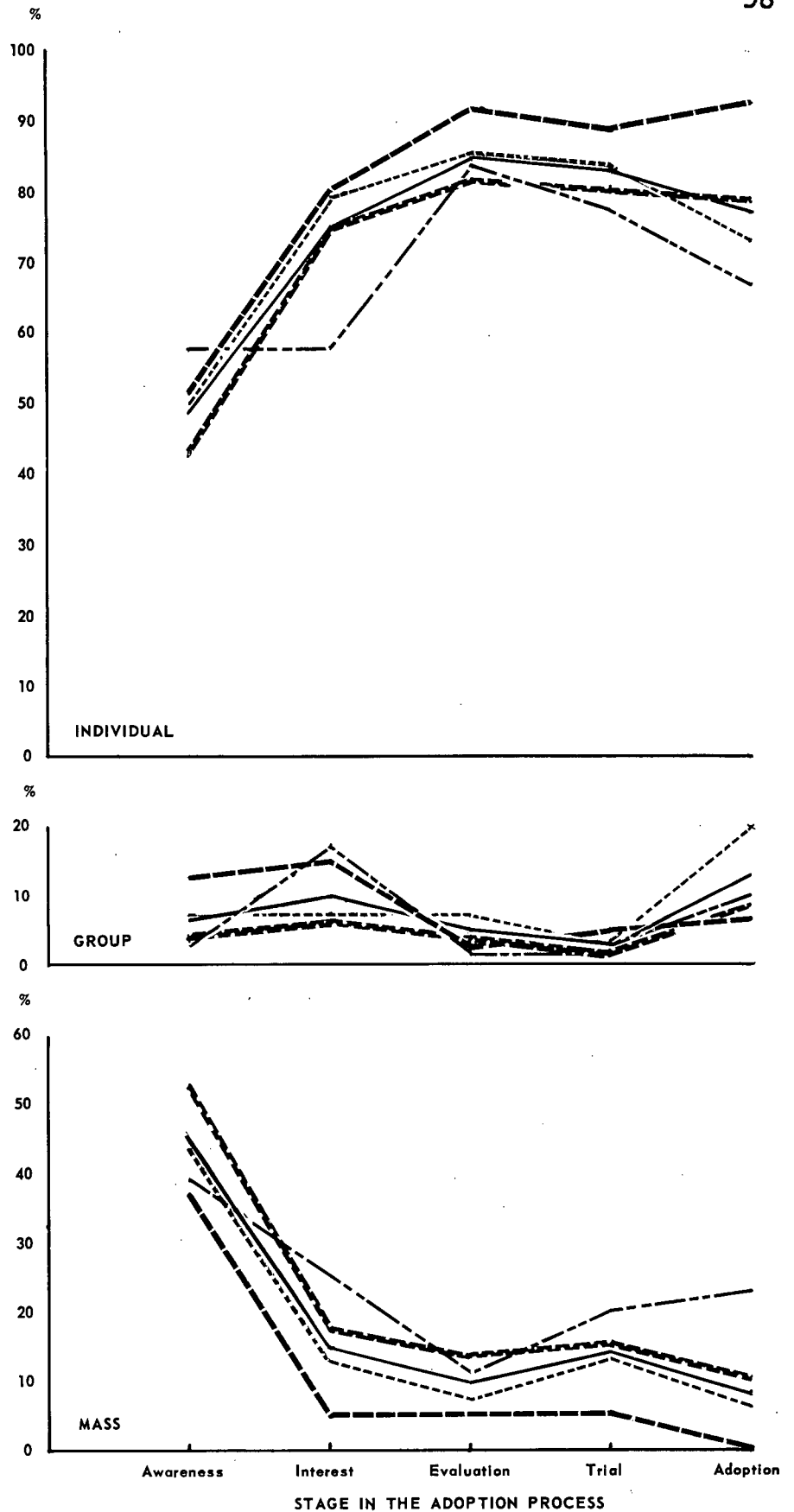
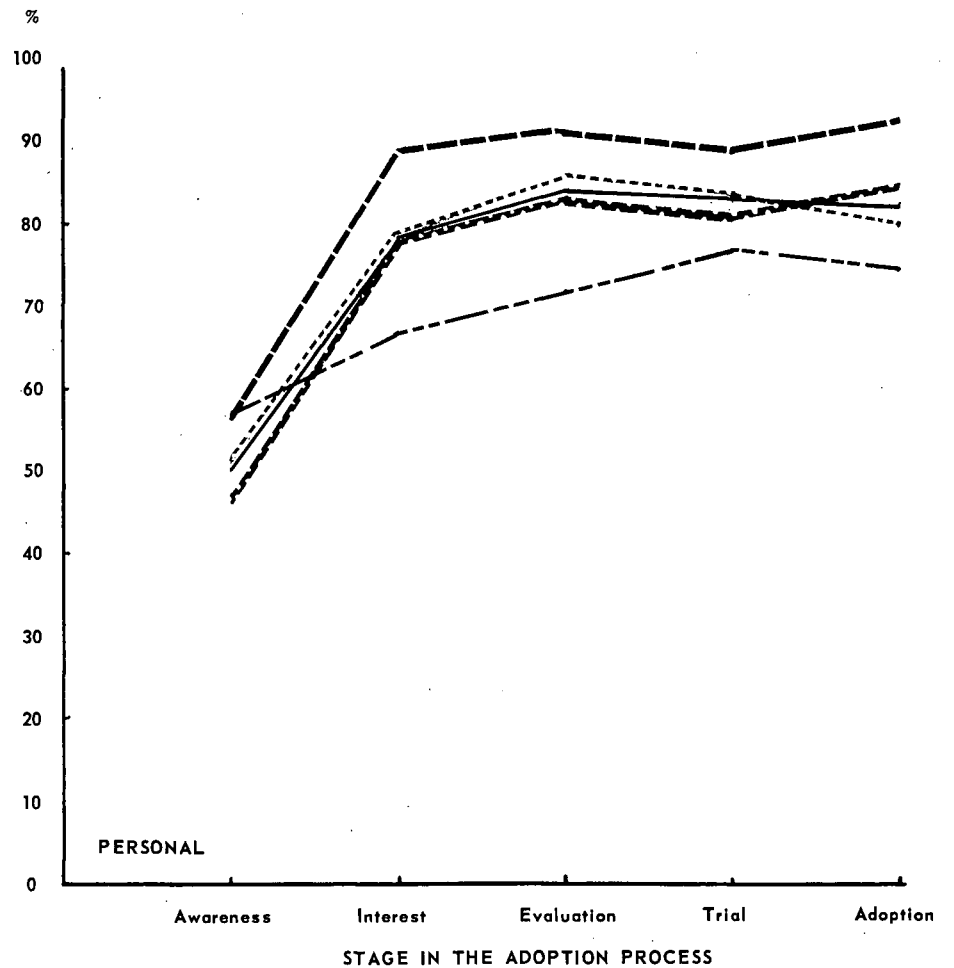
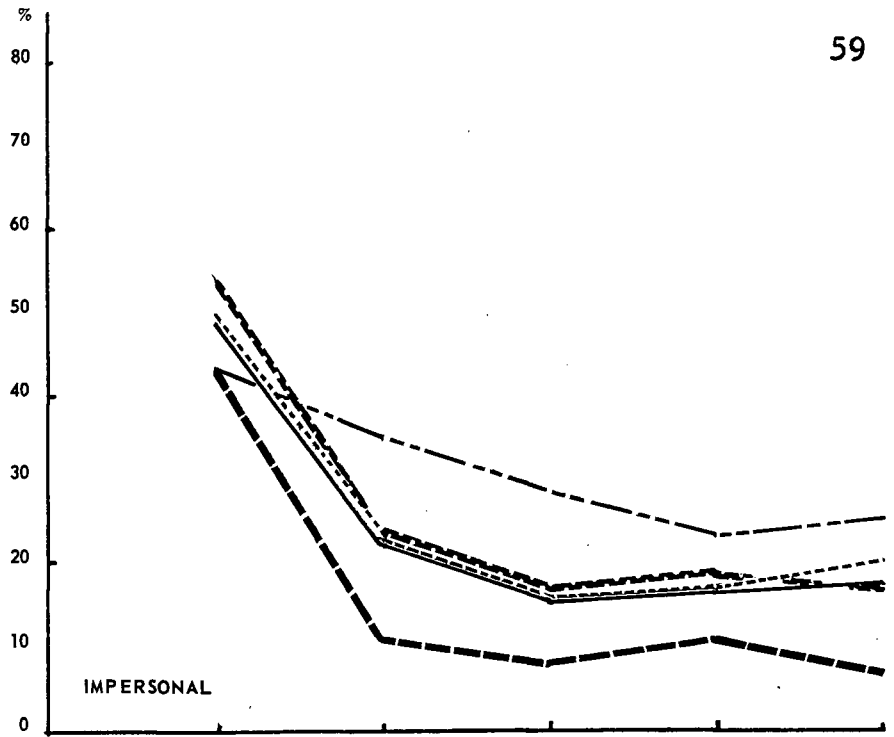


FIGURE 3

Percentage use by degree of contact of information sources by stages in the adoption process

KEY

All Respondents  
Innovators and  
Early Adopters  
Early Majority  
Late Majority  
Laggards



process is shown by commercial sources. However, they are slightly less important at the awareness stage than at most other stages. Informal sources of information increase in importance up to the evaluation stage, decrease between the evaluation and trial stages and increase again for the adoption stage.

#### Source use by method

A decline in the importance of mass media from awareness to evaluation is observed. There is, however, an increase in the percentage use of mass media from the evaluation to the trial stage but a decline after that. Group sources of information generally increase from awareness to interest, decline to evaluation and trial and increase at adoption.

Individual sources of information are, overall, the most important at all stages in the adoption process. Their importance increases sharply from awareness to evaluation and decreases, but at a lesser rate, from evaluation to adoption.

#### Source use by degree of contact

An increasing importance of personal sources up to the evaluation stage is observed. Between evaluation and adoption a slight decrease in the overall percentage use of personal sources is noted. The reverse situation is true for impersonal sources of information. Their percentage use declines sharply

between adoption and evaluation and increases slightly between evaluation and adoption. These trends are true for all adopter categories except laggards who do not show any significant percentage changes in their use of personal or impersonal sources of information between stages in the adoption process.

#### Individual sources of information

The district horticulturists are the most important sources of information at all stages in the adoption process.<sup>1</sup> Their influence ranged from nineteen per cent of all sources used at the awareness stage to thirty-one per cent at the trial stage. Other orchardists were among the top five sources at the interest, evaluation, trial, and adoption stages. Their percentages ranged from fifteen to twenty three. The Summerland research station was among the top five sources for all five stages. It was most important at the evaluation stage (thirteen per cent) and least important at the adoption stage (five per cent).

Table XI shows the five most popular individual sources of information at each stage in the adoption process.

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<sup>1</sup>Since the district horticulturists carried out the interviews, there is a definite possibility of a bias in their favour on the part of the respondents.

Table

## THE FIVE MOST FREQUENTLY USED SOURCES OF INFORMATION

Awareness		Interest		ADOPTION Evaluation	
Source	% Use	Source	% Use	Source	% Use
District horticult.	19.02	District horticult.	30.82	District horticult.	29.10
Magazines	13.63	Other orchardists	15.72	Other orchardists	20.15
Summerland research sta.	9.25	Summerland research sta.	12.89	Summerland research sta.	13.06
T.V. Chau-tauqua	9.51	Neighbours	5.35	Salesmen & dealers	4.85
T.V.	7.97	Co-operatives	4.72	B.C.Dept.of Agric.Pub.	4.48
TOTAL	59.38		69.50		71.64

\* Tie



## XI

## BY STAGE IN THE ADOPTION PROCESS

STAGE			
Trial		Adoption	
Source	% Use	Source	% Use
District horticult.	31.06	District horticult.	29.03
Other orchardists	20.83	Other orchardists	23.04
Summerland research sta.	11.74	Neighbours	9.22
Neighbours	6.44	Field days	5.99
Co-operatives	5.30	Summerland ) research sta) Relatives* )	5.53
	75.37		72.81

### III. SOURCES OF INFORMATION USED BY ADOPTER CATEGORY

Comparisons were also made of the use of information sources between adopter categories for all stages in the adoption process and for each adoption stage. Classifying information sources by type results in significant differences between adopter categories for all stages, awareness and evaluation. By the method classification significant differences are found for all stages, awareness, interest, and adoption, and when classifying by degree of contact, a significant difference between adopter categories is found only for all stages in the adoption process. Detailed percentages breakdowns for these classifications are given in Appendix II and a summary of significant relationships in Table XII.

The chi squares show whether or not there are significant differences in the distribution of information source use between the adopter categories for each stage and for all stages in the adoption process. In relation to Figures 1 to 3, these chi square values show the significance of the distance between lines for each stage and for all stages in the adoption process.

#### Source Use by Type

Between adopter categories, there is less use of mass media by the earlier adopters than the later ones at all stages in the adoption process; generally greater use of agricultural

Table XII

CHI SQUARE VALUES FOR COMPARISONS OF SOURCES OF INFORMATION USED BY ADOPTER CATEGORIES

Stage in the Adoption Process	Classification of Information Sources by:		
	Type	Method	Contact
All stages	<u>45.161</u>	<u>15.495</u>	<u>9.081</u>
Awareness	<u>29.003</u>	<u>8.841</u>	2.808
Interest	10.814	<u>14.341</u>	7.255
Evaluation	<u>18.598</u>	5.133	5.622
Trial	9.842	3.996	1.936
Adoption	15.303	13.771	4.108

NOTE: Underlined values are significant. The chi square tests were carried out using the null hypothesis of no differences in the use of information sources between the adopter categories at the given stage in the adoption process and a .05 level of significance.

agencies by the earlier adopters; little, if any, difference in the use of commercial sources by adopter categories; and no overall trend between adopter categories for informal sources. At the awareness stage, laggards are the greatest percentage users of informal sources followed, in order, by the late majority innovators and early adopters, and the early majority. At the evaluation stage the greatest users of informal sources are

the innovators and early adopters followed, in order, by the laggards, late majority, and early majority.

#### Source use by method

By adopter categories mass method sources are most used by the later adopters and least by the earlier adopters. The reverse is true for individual method sources of information. At most of the stages of adoption, they are least used by the laggards and most used by the innovators and early adopters. An interesting phenomenon is noted among the laggards. At the awareness stage, they do not follow the normal trend but instead use mass method sources, the second least, and individual method sources, the most of all adopter categories.

#### Source use by degree of contact

Generally, there is a greater use of personal sources and a lesser use of impersonal sources by the earlier adopters than the later ones.

#### Individual sources of information

The district horticulturist ranked first with all categories except laggards. The Summerland research station ranked second with both the innovators and early adopters and early majority categories but failed to place in the first five with the two slower adopter categories. Other orchardists were important in all categories but were most important to the late

majority and laggards. In fact, with the laggards other orchardists ranked first. Also, only in this category did neighbours rank in the first five sources of information. The tendency shown is for earlier adopters to go to the source of the innovation (i.e., Summerland research station) while later adopters rely more on orchardists who have previous knowledge of the innovation or are in the process of adopting it. The five most popular sources of information for each adopter category are shown in Table XIII.

Table XIII

## THE FIVE MOST POPULAR SOURCES OF INFORMATION BY ADOPTER CATEGORY

ADOPTER CATEGORY							
Innovators and early adopters		Early majority		Late majority		Laggards	
Source	% Use	Source	% Use	Source	% Use	Source	% Use
District horticult.	15.9	District horticult.	23.4	District horticult.	18.2	Other orchardists	18.1
Summerland research station	15.6	Summerland research station	13.2	Other orchardists	17.7	District horticult.	17.8
Other orchardists	12.6	Other orchardists	12.3	Magazines	10.1	Neighbours	8.1
Magazines	11.1	TV Chautauqua	7.9	TV chautauqua	7.7	TV	7.1
TV chautauqua	9.9	Magazines	7.1	B.C. Dept. of Agric. Pub.	6.3	Magazines	7.1
TOTAL	65.1		63.8		60.0		58.3

#### IV. SOURCES OF INFORMATION USED FOR THE SPECIFIED INNOVATIONS

Sources of information used by the respondents in working towards adoption of the specified innovations were classified and analysed.

For the pre-chautauqua innovations, significant differences between innovations were obtained for all three classifications. By type, the most obvious irregularities are less use of mass media for low-volume sprayers and less use of commercial sources and informal sources for hardy frame works than the average. For low-volume sprayers, using the method classification, there is less use of mass and group method sources and more use of individual sources than the average. The reverse is true for hardy frame works which are associated with more mass and group methods and less individual methods than the average.

The same sort of tendency is evident in the classification by degree of contact between the communicator and communication receiver. Dwarfing root stalks and power take-off sprayers follow closely the average percentage-distribution of approximately sixty per cent use of personal sources and forty per cent use of impersonal sources. However, low-volume sprayers use more personal and less impersonal sources than the average

while hardy frame works use less personal and more impersonal contacts than the average.

Only the classification of sources by type exhibits a significant chi square value for the innovations introduced or stressed on the 1964 T.V. Chautauqua. Mass media are used more and agricultural agencies less than the average for four-way spraying. Commercial sources are used more than the average for moristan/morocide and not at all for central leader pruning. Informal sources are used less than the average for moristan/morocide.

Table XIV shows the distributions of source classifications and the chi square values for these distribution.

The most popular individual sources of information were also tabulated for each innovation. Of interest is the fact that the district hall chautauqua plays an important part in three of the four pre-chautauqua innovations. Also, salesmen and dealers are important in the two innovations concerned with sprayers. These are the two innovations where new or modified equipment is necessary and presumably the equipment manufacturers would have a large interest in having these innovations adopted.

The T.V. Chautauqua was, needless to say, the most important single source of information for all innovations introduced or stressed on the 1964 T.V. Chautauqua. B.C. Dep-

Table

## PERCENTAGE DISTRIBUTION

Innovation	CLASSIFICATION OF SOURCES BY TYPE				
	Mass Media %	Agric. Agencies %	Comm-ercial %	In-formal %	Total %
Pre-chautauqua innovations					
Dwarfing Root Stocks	28.5	43.0	9.4	19.1	100.0
Low-vol. sprayers	19.4	42.5	11.5	26.6	100.0
Hardy frame works	32.6	51.9	3.9	11.6	100.0
Power take-off sprayers	25.8	40.3	12.4	21.5	100.0
Average	26.6	44.5	9.2	19.7	100.0
Chi square value					<u>37.422</u>
Chautauqua innovations					
Four-way spraying	71.2	14.7	2.7	11.4	100.0
Use of moristan/morocide	63.3	22.6	7.3	6.8	100.0
Central leader pruning	63.6	21.2	0.0	15.2	100.0
Average	66.5	19.1	3.9	10.4	100.0
Chi square value					<u>18.674</u>
Overall total	39.5	36.3	7.5	17.0	100.0
Overall Chi square value					<u>256.750</u>

NOTE: Underlined values are significant. The null hypotheses used for comparisons within each source classification was that there was no difference in source use between innovations at a .05 level of significance.



XIV

OF SOURCE USE BY INNOVATION

METHOD				CONTACT		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
28.5	16.8	54.7	100.0	55.3	44.7	100.0
19.4	11.9	68.8	100.0	69.2	30.8	100.0
32.3	21.7	46.0	100.0	48.1	51.9	100.0
25.8	15.1	59.1	100.0	59.1	40.9	100.0
26.5	16.4	57.1	100.0	57.9	42.1	100.0
			<u>27.408</u>			<u>23.353</u>
71.2	4.9	23.9	100.0	27.2	72.8	100.0
61.1	6.6	32.3	100.0	33.3	66.7	100.0
67.0	9.2	23.9	100.0	26.7	73.7	100.0
66.5	6.5	27.0	100.0	29.3	70.7	100.0
			6.093			2.230
39.4	13.2	47.4	100.0	48.7	51.6	100.0
			<u>251.541</u>			<u>123.281</u>

Table

## THE FIVE MOST USED SOURCES OF INFORMATION

All Pre-chautauqua innovations		PRE-CHAUTAUQUA			
		Dwarfing root stocks		Low-volume sprayers	
Source	% Use	Source	% Use	Source	% Use
Other orchardists	15.4	Other orchardists	14.7	Other orchardists	21.3
Summerland research sta.	13.8	Magazines	12.3	Summerland research sta.	17.8
District horticult.	13.0	District horticult.	12.3	District horticult.	11.9
Magazines	10.8	Summerland research sta.	11.7	Salesmen & dealers	9.9
District hall chautauqua	10.2	District hall chautauqua	11.3	Magazines	7.5
Total	63.2		62.3		68.4

\* Tie

## XV

## FOR THE PRE-CHAUTAUQUA INNOVATIONS

INNOVATIONS			
Hardy frame works		Power take-off sprayers	
Source	% Use	Source	% Use
District horticult.	18.5	Other orchardists	17.7
Magazines	14.2	Summerland research sta.	15.1
District hall chautauqua	13.3	Salesmen & dealers	12.4
Summerland research sta.	11.2	District hall chautauqua	9.1
Other orchardists	8.2	Magazines )	8.6
		District )	
		horticult.* )	
	65.3		62.9

Table

## THE FIVE MOST USED SOURCES OF INFORMATION

All Innovations		All Chautauqua innovations		CHAUTAUQUA Four-way spraying	
Source	% Use	Source	% Use	Source	% Use
TV Chautauqua	12.9	TV Chautauqua	32.0	TV Chautauqua	36.4
Other orchardists	12.8	Magazines	13.7	Magazines	14.7
District horticult.	11.9	District horticult.	9.8	District horticult.	8.2
Magazines	11.7	B.C.Dept.of Agric.Pub.	9.1	Other orchardists	7.6
Summerland research sta.	10.0	Other orchardists	7.2	B.C.Dept.of Agric.Pub.	6.0
Total	59.3		71.7		72.8

\* Tie

## XVI

## OVERALL AND FOR THE CHAUTAUQUA INNOVATIONS

INNOVATIONS			
Moristan/ morocide Source	% Use	Central Leader pruning Source	% Use
TV Chautauqua	30.5	TV Chautauqua	26.5
B.C.Dept.of Agric.Pub.	14.1	Magazines	15.2
District horticult.	13.6	Other orchardists	11.1
Magazines	11.9	Federal Dept. of Agric.Pub.	8.1
Salesmen & dealers	5.7	Ag.mtg.& Adult Educ.courses	6.1
		Dist.horticult.* B.C.Dept.of A.Pub.	
	75.7		66.7

artment of Agriculture publications ranked among the first five for chautauqua innovations but did not do so for the pre-chautauqua innovations. A detailed analysis of the most popular sources by innovation is given in Tables XV and XVI.

#### V. MOST USED SOURCES OF INFORMATION OVERALL

Taking all the possible categories under which sources of information were gathered, stages in the adoption process, pre-chautauqua innovations, and chautauqua innovations, the ten most popular information sources were obtained. The results are in Table XVII.

Table XVII

#### THE MOST USED SOURCES OF INFORMATION OVERALL

Source	Per Cent Use
District horticulturist	16.9
Other orchardists	13.7
Summerland research station	9.8
T.V. Chautauqua	9.4
Magazines	9.0
B.C. Department of Agriculture Publications	4.8
Salesmen and dealers	4.3
Neighbours	4.2
District hall chautauqua	4.0
Co-operatives	4.0
Total	80.1

## CHAPTER VI

### THE INNOVATIONS

Each respondent was asked to indicate the stage in the adoption process he had reached in working towards adoption of each of the specified innovations. Comparisons were made between the distributions of respondents' stages for each of the pre-chautauqua innovations (innovations introduced within five years prior to the 1964 T.V. Chautauqua) and chautauqua innovations (new innovations stressed on the 1964 T.V. Chautauqua) and also between the distributions of stages for each adopter category by innovation.

#### I. THE PRE-CHAUTAUQUA INNOVATIONS

Examining the distribution of respondents' stages over all stages in the adoption process, there are several features worth noting. Sixteen per cent of respondents are not aware of hardy frame works or air-blast sprayers operating through power take-off from the tractor.<sup>1</sup> This compares with only two

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<sup>1</sup>There is a possible source of error here in that a non-answer was taken as indicating the respondent was not aware of the innovation. However, a non-answer could also mean that the respondent was not asked or did not answer the question. Respondents of this type were, hopefully, all eliminated. In any case, the possible error is not more than 2 per cent (per cent of respondents giving a non-answer for the adoption of dwarfing root stocks).

per cent who are not aware of dwarfing root stocks. At the awareness, interest, and evaluation stages, power take-off sprayers show a larger percentage of respondents than the average. The other innovations are relatively close to the average for each of these three stages in the adoption process.

Some interesting facts are apparent at the trial stage. This is the least used stage for all innovations except dwarfing root stocks. There appears to be a relationship between the divisibility of an innovation and the number of respondents who are at the trial stage for that innovation at any one time. Dwarfing root stocks and hardy frame works, innovations which may be adopted gradually or in small amounts, are the innovations with the largest percentage of respondents at the trial stage. On the other hand, low volume air-blast sprayers and power take-off sprayers which are usually adopted on a once and for all basis have very few respondents at the trial stage.

At the adoption stage, there is a wide discrepancy between the percentage of respondents adopting low-volume, air-blast sprayers (sixty per cent) and those adopting power take-off sprayers (twenty-five per cent). However, the per cent of respondents adopting dwarfing root stocks and hardy frame works are very similar. While the adoption of one of these last two innovations does not mean the necessary adoption of the other,



they are usually very closely associated in the orchardist's mind and involve the same special area of orcharding. Table XVIII gives a detailed analysis of the adoption of the pre-chautauqua innovations.

Table XVIII

PERCENTAGE DISTRIBUTIONS OF ADOPTION STAGES FOR THE  
PRE-CHAUTAUQUA INNOVATIONS

Innovation	Stage in the adoption process						Total
	0 not aware	1 aware- ness	2 inter- est	3 evalu- ation	4 trial	5 adop- tion	
	%	%	%	%	%	%	%
Dwarfing root stocks	2.1	12.4	12.4	8.3	13.8	51.0	100.0
Low-volume sprayers	14.8	11.7	6.9	13.1	3.4	60.0	100.0
Hardy frame works	15.9	17.2	4.1	9.0	4.1	49.7	100.0
Power take-off sprayers	15.9	24.8	13.1	19.3	2.1	24.8	100.0
Average	9.7	16.6	9.1	12.4	5.9	46.4	100.0

Chi square value: 85.666

NOTE: The underlined value is significant. The chi square test was carried out using the null hypothesis of no differences in the distribution of adoption stages between innovations at a .01 level of significance.

## II. THE CHAUTAUQUA INNOVATIONS

Since the chautauqua innovations are of more recent origin there are naturally fewer respondents at the adoption stage than for any of the pre-chautauqua innovations. Four-way spraying and moristan/morocide roughly parallel each other in their percentage distributions of adoption stages, although there are a greater number of respondents having adopted four-way spraying than moristan/morocide and more respondents are at the interest stage for moristan/morocide than for four-way spraying.

The innovation, pruning for a central leader, showed the most deviations from the average with more respondents not aware<sup>2</sup> and less at the interest and evaluation stages. Once again, the trial stage had the lowest percentage of respondents. A detailed analysis of the adoption of the chautauqua innovations is given in Table XIX.

## III. COMPARISONS BETWEEN ADOPTER CATEGORIES

An analysis of the differences between adopter categories in the adoption of each innovation was carried out. For every innovation, the largest percentage of any adopter category

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<sup>2</sup>The same type of error is possible here as noted in footnote 1.

Table XIX

PERCENTAGE DISTRIBUTIONS OF ADOPTION STAGES FOR THE  
CHAUTAUQUA INNOVATIONS

Innovation	Stage in the Adoption Process						Total
	0 not aware %	1 aware- ness %	2 inter- est %	3 evalu- ation %	4 trial %	5 adop- tion %	
Four-way spraying	9.6	44.0	12.8	16.0	0.0	17.6	100.0
Use of moristan and morocide	11.7	38.3	22.5	14.2	1.7	11.7	100.0
Central leader pruning	31.7	47.1	4.8	2.9	1.9	11.5	100.0
Average	16.9	43.0	13.8	11.5	1.1	13.8	100.0

Chi square value: 47.322

NOTE: The underlined value is significant. The chi square test was carried out using the null hypothesis of no difference in the distribution of adoption stages between innovations at a .01 level of significance.

having adopted the innovation belongs to the innovators and early adopters. Conversely, for all innovations except one, the smallest percentage of any adopter category having adopted the innovation belongs to the laggards. The early majority and late majority categories follow this trend for all innovations but one. This indicates that adoption may be considered a generalized trait. That is, orchardists adopting one innovation will probably adopt most innovations. Orchardists will

also consistently fail to adopt innovations as indicated by the low adoption percentages of laggards.

Examining the pre-chautauqua innovations, an inverse trend is apparent at the not aware and awareness stages. All of the innovators and early adopters are at least aware of the innovation while up to seventy per cent of the laggards are not aware of hardy frame works. For all pre-chautauqua innovations, the largest percentages at the awareness stage are associated with the laggards and the lowest percentages with the innovators and early adopters.

The above two trends of the pre-chautauqua innovations are not as distinct with the chautauqua innovations. All of the innovators and early adopters are aware of the innovations while the largest percentage not aware of each innovation are the laggards. However, at the awareness stage, there are discrepancies between the innovations. Laggards are the largest percent only aware of four-way spraying and the late majority the largest per cent aware of moristan/morocide. For central leader pruning, the least adopted of any innovation, innovators and early adopters, the early majority, and the late majority have approximately the same percentages at the awareness stage. Appendix III contains complete percentage distributions of the stages in the adoption process by adopter category for each innovation.

## CHAPTER VII

### THE 1964 T.V. CHAUTAUQUA

A three-fold analysis of the effectiveness of the 1964 T.V. Chautauqua was carried out: (1) an analysis of those watching, (2) a comparison of the proportion of respondents watching the 1964 T.V. Chautauqua with the proportion attending other educational courses, and (3) an analysis of the respondents' comprehension of the program.

#### I.. ANALYSIS OF THOSE WATCHING THE 1964 T.V. CHAUTAUQUA

##### District Hall Chautauqua vs. T.V. Chautauqua

Most respondents (92.4 per cent ) owned an operating television receiver and thus were able to watch the 1964 T.V. Chautauqua. However, only 60.7 per cent of the orchardists interviewed watched at least part of the 1964 T.V. Chautauqua. This compares with 63.4 of the respondents who attended the chautauqua when it was held in district halls. The difference between the percentages is not statistically significant.<sup>1</sup> That is, we cannot conclude from the sample that more orchardists attended the chautauqua in district halls than watched it on T.V.

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<sup>1</sup>The null hypothesis used was that there was no difference between the proportion who attended the district hall chautauqua and the proportion watching the T.V. chautauqua. A .05 level of significance was used.

By cross-tabulation, 46.2 per cent of the respondents watched the T.V. chautauqua and also attended the district hall chautauqua. Fourteen and one-half per cent watched the T.V. chautauqua only, 17.2 per cent attended the district hall chautauqua only, and 22.1 per cent did not bother with either style of chautauqua.

Examining the percentages of respondents attending various combinations of chautauquas reveals several trends. A definite correlation between adoption score and attendance at chautauquas is noted. More of the innovators and early adopters attended both chautauquas than any other adopter category. Also, more of the laggards than any other adopter category did not bother with either style of chautauqua. Laggards were the only adopter category to have a greater percentage watching the T.V. chautauqua than attending the district hall chautauqua. Table XX shows the results in more detail.

#### Days watched

The differences between the percentages of respondents watching the T.V. chautauqua by day are not statistically significant.<sup>2</sup>

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<sup>2</sup>A chi square value of .652 was obtained using a .05 level of significance and the null hypothesis that there were no differences in the proportion of respondents watching each program.

Percentages of respondents watching  
T.V. Chautauqua by day

DAY	Per Cent
Monday	51.4
Tuesday	53.0
Wednesday	50.7
Thursday	51.3
Friday	47.5

Table XX

DISTRIBUTIONS OF RESPONDENTS BY ADOPTER CATEGORY  
ATTENDING VARIOUS COMBINATIONS OF CHAUTAUQUAS

Chautauquas	Innovation and early adopters	Early majority	Late Majority	Lag- gards	Total
	%	%	%	%	%
Both	80.0	59.3	30.4	10.0	46.2
Attending district hall chautauqua only	5.0	15.3	26.1	15.0	17.2
Watching 1964 T.V. chautauqua only	0.0	10.2	19.6	30.0	14.5
Neither	15.0	15.3	23.9	45.0	22.1
Total	100.0	100.0	100.0	100.0	100.0
Chi square value:	<u>33.985</u>				

NOTE: The underlined value is significant. A .05 level of significance was used with the null hypothesis of no differences in proportions between adopter categories.

### Length of time watched

Most respondents watching the chautauqua at least one day watched the whole program.

Time watched percentages for all respondents who watched any of the T.V. Chautauqua

Time	Per cent
1.5 hours	89.8
1.0 - 1.5 hours	5.7
.5 - 1.0 hour	3.4
.5 hour or less	1.1
Total	100.0

### Respondents' opinion of the T.V. Chautauqua

The weighted average of the respondents' personal feeling about the T.V. Chautauqua was found to lie closest to statement 3 (I hope we have another one next year). The median was statement 4 (It has provided the kind of information I can use in my orchard).

Of the respondents who had an opinion, 94.6 per cent thought the time of year that the chautauqua was held was suitable; 68.7 per cent found the time of day suitable, and 88.5 per cent stated that the length was suitable.

### Reasons for not watching the 1964 T.V. Chautauqua

A variety of reasons were given by respondents who did not watch the T.V. chautauqua. The most common was that the



respondent was working at the time the program was being aired.

Reasons for not watching the 1964  
T.V. Chautauqua

Reason	Number of Respondents	Percent of total respondents not watching
No T. V. set	5	8.8
Working at the time	32	56.1
Not aware of program	1	1.8
Out of town	3	5.3
Ill or in hospital	2	3.5
Did not need information	1	1.8
Busy in the orchard	2	3.5
Other	2	3.5
No reasons given	9	15.8
Total	57	100.0

II. ATTENDANCE AT OTHER EDUCATIONAL GATHERINGS FOR  
RESPONDENTS ATTENDING VARIOUS COMBINATIONS OF  
CHAUTAUQUAS

Comparison of respondents on the basis of their attendance and/or viewing of various combinations of chautauquas with their attendance at other educational courses yields some significant relationships.

No significant differences are apparent between percentages of respondents attending agriculture courses in high school and adult courses in agriculture when respondents are classified on the basis of their attendance or viewing of the chautauquas. However, significantly more respondents who participated in both chautauquas attended agriculture courses at university than

the average. Respondents attending the district hall chautauquas only also attend many more adult courses in subjects other than agriculture than do most respondents. The third significant difference is with the district horticulturist discussion groups. Here, respondents taking part in both styles of chautauqua attend more frequently and respondents taking part in neither style of chautauqua less frequently than the average. Thus, attendance at educational gatherings appears to be a generalized trait of certain respondents. Complete percentages are shown in Table XXI.

### III. COMPREHENSION OF THE T. V. CHAUTAUQUA

Forty-five true-false questions were asked on the content of the 1964 T.V. Chautauqua. With five one and one-half hour programs, three questions were based on each half-hour or, nine questions per program. It was thus possible to test comprehension by program and by program segment. The assumption is made that all questions were of equal difficulty.

#### Comparisons between programs

Higher than average scores were obtained on the questions dealing with the subjects of the Monday and Wednesday programs. A lower than average score was obtained for the Tuesday ques-

Table XXI

ATTENDANCE AT OTHER EDUCATIONAL GATHERINGS VERSUS  
ATTENDANCE AT THE CHAUTAUQUAS

Chautauquas attended or viewed	PERCENT ATTENDING				District horticul discus. groups
	<u>Agriculture Courses</u>		<u>Adult Courses</u>		
	High School	Univer- sity	in agric.	in other subjects	
	%	%	%	%	%
Both	13.8	14.8	14.3	30.2	85.1
District hall chautauqua only	12.0	4.8	16.7	78.2	64.0
1964 T.V. chautauqua only	19.0	0.0	10.5	38.1	52.4
Neither	15.6	0.0	9.4	32.3	28.1
Average	14.7	7.7	13.0	39.9	64.1
Chi square value:	.515	<u>8.516</u>	.680	<u>17.300</u>	<u>31.972</u>

NOTE; Underlined values are significant. The null hypothesis used was there were no differences in attendance at each course, etc. between the respondents classified on the basis of their attendance or viewing of the chautauquas. A .05 level of significance was used.

tions and approximately average scores for the Thursday and Friday programs.

Mean score by program <sup>3</sup>	
Day	Mean Score
Monday	5.63
Tuesday	4.82
Wednesday	5.60
Thursday	5.37
Friday	5.28
Average	5.34

#### Comparisons between program segments

Significant differences between program segment means were obtained for all programs. For three programs (Wednesday, Thursday, and Friday), the highest average scores are obtained on questions based on the first half-hour of the program. On Monday, the highest scores were for questions based on the second half-hour of the program, while for Tuesday, the highest scores were for questions based on the last half-hour of the program. More specific data is contained in Table XXII.

#### Comparisons between those watching and those not watching the 1964 T.V. Chautauqua

Friday was the only program in which there was a significant difference between the mean scores of those watching and

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<sup>3</sup>Significant differences were found between means. The F test gave 4.064 using the null hypothesis of no difference between means and a .05 level of significance.

Table XXII  
MEAN SCORE BY PROGRAM SEGMENT

Program	Program segment			F value
	First $\frac{1}{2}$ hour	Second $\frac{1}{2}$ hour	Third $\frac{1}{2}$ hour	
Monday	1.64	2.01	1.91	<u>5.434</u>
Tuesday	1.50	1.47	1.85	<u>7.242</u>
Wednesday	2.24	1.54	1.82	<u>17.076</u>
Thursday	2.39	1.34	1.64	<u>56.316</u>
Friday	1.98	1.61	1.70	<u>6.236</u>

NOTE: Underlined values are significant. A null hypothesis of no difference between means was used at a .05 level of significance.

those not watching the program for the questions based on the content of the program. Overall there was also a significant difference in the mean scores of those watching and those not watching the program. In both of these cases, the average score for the respondents watching the program was higher than the average score for the respondents not watching the program. The actual mean scores are shown in Table XXIII.

Table XXIII

COMPARISONS OVERALL AND BY PROGRAM BETWEEN MEAN SCORES FOR  
RESPONDENTS WATCHING AND NOT WATCHING THE T.V. CHAUTAUQUA

Program	<u>Mean score for respondents</u>		F value
	Watching	Not Watching	
Monday	5.99	5.77	0.353
Tuesday	5.08	4.36	2.765
Wednesday	5.63	6.29	2.158
Thursday	5.41	5.15	0.371
Friday	5.68	4.89	<u>4.349</u>
Overall	32.92	25.94	<u>27.363</u>

NOTE: Underlined values are significant. A .05 level of significance was used. A null hypothesis of no difference in score between those watching and those not watching was used.

#### Comparisons between adopter categories

There is a significant trend of higher scores for earlier adopters as shown by the following table:

Mean Scores by Adopter Category <sup>4</sup>	
<u>Adopter Category</u>	<u>Mean Score</u>
Innovators and early adopters	34.88
Early majority	32.75
Late majority	27.54
Laggards	24.41

<sup>4</sup>Significant differences were found between means. A significant F value of 9.947 was calculated using the null hypothesis of no differences between the means of the adopter

Comparisons of lengths of time watched

There was no significant relationship found between the score of respondents and the average length of time they watched the chautauqua program.

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categories and a .05 level of significance. Also, a correlation coefficient of .3663 between the true-false score of respondents and their percentage adoption of selected innovations was found. The correlation coefficient was tested and found to be significant using the null hypothesis of no correlation and a .05 level of significance.

## CHAPTER VIII

### SUMMARY, CONCLUSIONS, AND LIMITATIONS

This study analyzed the adoption of some innovations by Okanagan orchardists. Many adoption studies have been carried out in the United States and other countries but none in Canada. Consequently, a considerable body of literature on the theory of the diffusion and adoption of technological innovations has been established. Comparisons between the findings of other studies and this study were made.

The 1964 T.V. Chautauqua, produced by the Horticultural Branch of the British Columbia Department of Agriculture for Okanagan Valley orchardists, was also evaluated. This televised chautauqua replaced an earlier version of chautauqua which was held in district halls throughout the Okanagan Valley.

A sample of Okanagan Valley orchardists was interviewed in order to obtain the data necessary to fulfill the purposes of the study. Data were collected on personal characteristics of the respondents, characteristics of the respondents' orchards, sources of information used by respon-



dents at each stage in the adoption process and in working towards the adoption of specific innovations, the respondents' stage of adoption for a number of specific innovations, the respondents' reactions to the 1964 T.V. Chautauqua, and the respondents' comprehension of the 1964 T.V. Chautauqua.

Correlations between the various characteristics of the respondents yielded some illuminating results and several are worth mentioning. Respondents with higher educational levels belong to more organizations but attended less, were newer entrants to agriculture, and had more non-agricultural income than the less-educated respondents. Fruit growers selling the highest value of orchard products participated more in organizations, were older, and had been orchardists longer than those with smaller sales. The distribution of the respondents on the basis of their innovativeness was found to approximate a normal curve and thus the respondents could be divided into adopter categories on the basis of their position on the normal distribution. Several significant differences between these adopter categories were found.

The more rapid adopters are more active educationally and enjoy orcharding more than the slower adopters. Earlier adopters also (on the average) have been in orcharding longer. However, there is a large group of them who have been orchardists for less than five years. These characteristics have also been found in an American setting.

Ninety per cent of the innovators and early adopters were full-time orchardists and early adopters generally earn most of their income from agriculture. This characteristics is in direct conflict with previous findings.

The earlier adopters also had larger orchards, sold a greater amount of orchard products and had more valuable orchards. These findings generally coincide with other studies.

The tenure status of the adopter categories was relevant. Most of the innovators and early adopters owned part and also rented part of their orchard, while all of the laggards completely owned their orchard. American studies have found complete ownership of the farm to be associated with innovativeness.

The sources of information used by respondents in the adoption of innovations are a function of the stage in the adoption process, the particular innovation, and the adopter category in which the respondent falls. Classifying information sources by type, mass media are the most important at the awareness stage, but decline towards adoption. Agricultural agencies increase to the most important type from the awareness stage to the interest stage but decline slightly between trial and adoption. Other studies have found agricultural agencies to decrease in importance from awareness onwards. Commercial sources generally show little change over the stages in the adoption process while informal sources increase in importance.

as a respondent works towards adoption.

Using a classification of sources of information by method, mass and individual sources are of approximately equal importance at awareness but diverge at other stages in the adoption process. Individual sources increase in importance up to evaluation and decline slightly thereafter. The opposite is true for mass method sources. Group sources are of low importance at all stages in the adoption process.

Personal and impersonal sources were of equal importance at the awareness stage but also diverged in later stages with impersonal sources declining up to the evaluation stage and personal sources following the opposite trend. The above trends, except for agricultural agencies, are in agreement with previous work.

For the specified innovations, the only apparent pattern was greater use of commercial sources of information for certain commercially-produced innovations such as sprayers and sprays.

Findings for source use by the adopter categories are somewhat contradictory to some prior studies. There is less use of mass media, more use of agricultural agencies, less use of commercial sources, and less use of informal sources by the earlier adopters than the later ones. Other studies have found more use of mass media and commercial sources by the earlier adopters. Earlier adopters also use more group and less indi-

vidual sources, classified on the basis of method. When classifying sources of information on the basis of the degree of contact between communicator and communication receiver, earlier adopters were found to use more personal sources of information than later adopters.

There is evidence of a two-step diffusion of technological information with the later adopter categories using other orchardists (most likely the earlier adopters) more than the first two adopter categories.

There were found to be differences in the overall adoption rate of the innovations. The most obvious reason for this is the different lengths of times that the innovations have been made available to the orchardists. The characteristics of the innovation also played a part in its adoption. Large innovations or those which were not divisible, had a low percentage of respondents at the trial stage. The factor of congruency was important in the similar percentage adoptions of dwarfing root stocks and hardy frame works, which are usually associated in the orchardist's mind.

Innovativeness was found to be a general characteristic of certain respondents. Orchardists who adopt one innovation will consistently do so while others will consistently fail to adopt innovations. Thus, with a few exceptions,

and the general body of adoption theory can be applied to a Canadian setting.

Most of the respondents who watched the chautauqua watched it full-time and reacted favourably to it. Most also thought that the time of year, time of day, and length of the chautauqua were suitable.

Attendance at or watching of chautauquas appears to be part of a generalized trait towards attending educational gatherings.

A true-false test, which appears to be a valid estimator of comprehension of an educational program, showed the best comprehension, by program, for Monday and Wednesday and by program segment, for the first half-hour. Also, those watching the programs obtained a higher score than those not watching and the true-false score was positively correlated with adoption.

Although the T.V. Chautauqua did not reach more orchardists overall than the district hall chautauqua, it was watched by more of the laggards and could be considered more successful from this point of view. Since laggards use fewer agricultural agencies than most orchardists, the T.V. Chautauqua has probably reached a new clientele for the extension service.

The limitations of this study are primarily in the quality of the data. Firstly, a sample of orchardists was used

to estimate population parameters. Consequently, all relationships had to be tested for significance and many relations which probably were true for the population could not be verified because of the limited sample size. Second, a list of orchardists compiled in 1960 was used as the population from which the sample was chosen. This list would not represent the population of orchardists as of April 1964 (the time when the data were gathered) since orchardists who had established themselves since 1960 would not be included and thus would not have a chance of being chosen for the sample. Thirdly, six different interviewers were used in gathering the data which led to some lack of uniformity in interpreting the questions and the respondents' answers.

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**APPENDIX I**

**PERCENTAGE DISTRIBUTIONS OF**

**SOCIOECONOMIC CHARACTERISTICS**

Table XXIV  
PERCENTAGE DISTRIBUTION OF AGE FOR  
ALL RESPONDENTS

Age ( years )	Per cent of respondents
less than 20	0.
20 - 24	0.7
25 - 34	9.7
35 - 44	24.1
45 - 54	26.9 (median category)
55 - 64	23.4
65 and over	15.2

Table XXV  
PERCENTAGE DISTRIBUTION OF EDUCATION  
FOR ALL RESPONDENTS

Educational Level	Per cent of respondents
less than 5 years	6.9
5 - 8 years	27.8
9 - 11 years	28.4 (median category)
Junior matriculation	19.4
Senior matriculation	9.7
University degree	4.9
University graduate work	2.8

Table XXVI

## MISCELLANEOUS SOCIOECONOMIC DATA

Data	Result
	%
Respondents attending agriculture courses in high school	14.7
Respondents attending adult courses in subjects other than agriculture	40.0
Respondents subscribing to at least one local newspaper	90.0
Respondents regularly receiving at least one farm magazine other than 'Country Life'.	84.6
Respondents having a television set in working order	92.4

Table XXVII

 PERCENTAGE DISTRIBUTION OF ATTENDANCE AT UNIVERSITY  
 COURSES IN AGRICULTURE BY ADOPTER CATEGORY

Adopter Category	Attendance at agriculture courses at University		Total
	Yes	No	
	%	%	%
Innovators, early adopters and early majority	12.7	87.3	100.0
Late majority and laggards	1.7	98.3	100.0
All respondents	7.7	92.3	100.0



Table XXVIII

PERCENTAGE DISTRIBUTION OF ATTENDANCE AT ADULT  
COURSES IN AGRICULTURE BY ADOPTER CATEGORY

Adopter Category	Attendance at adult courses in agriculture		Total
	Yes	No	
	%	%	%
Innovators and early adopters	42.0	58.0	100.0
Early majority	7.4	92.6	100.0
Late majority	7.1	92.9	100.0
Laggards	13.0	87.0	100.0
All respondents	13.1	86.9	100.0

Table XXIX

PERCENTAGE DISTRIBUTION OF ATTENDANCE AT DISTRICT  
HALL CHAUTAUQUA BY ADOPTER CATEGORY

Adopter Category	Attendance at District hall chautauqua		Total
	Yes	No	
	%	%	%
Innovators and early adopters	85.0	15.0	100.0
Early majority	74.6	25.4	100.0
Late majority	56.5	43.5	100.0
Laggards	25.0	75.0	100.0
All respondents	63.4	36.6	100.0

Table XXX

PERCENTAGE DISTRIBUTION OF ATTENDANCE AT DISTRICT  
HORTICULTURIST DISCUSSION GROUPS BY ADOPTER CATEGORY

Adopter Category	Attendance at District Horticulturist Discussion Groups		Total
	Yes	No	
	%	%	%
Innovators and early adopters	90.0	10.0	100.0
Early majority	74.6	25.4	100.0
Late majority	60.5	39.5	100.0
Laggards	21.7	78.3	100.0
All respondents	64.1	35.9	100.0

Table XXXI

PERCENTAGE DISTRIBUTION OF ENJOYMENT OF ORCHARDING  
BY ADOPTER CATEGORY

Adopter Category	<u>Degree of enjoyment:</u>			Total
	very much	occasion- ally	not at all	
	%	%	%	%
Innovators and early adopters	95.0	5.0	0.0	100.0
Early majority	79.7	18.6	1.7	100.0
Late majority	83.7	16.3	0.0	100.0
Laggards	56.5	39.1	4.4	100.0
All respondents	79.3	19.3	1.4	100.0

Table XXXII

DISTRIBUTION OF THE NUMBER OF ORGANIZATIONS  
BELONGED TO FOR ALL RESPONDENTS

Number of organizations* belonged to	Per cent of all respondents
0	45.5
1	19.3 (median category)
2	15.2
3	9.0
4	6.2
5	2.8
6	0.7
7	0.7
8	0.7

\* excluding a church (per se) and the B. C. Fruit Growers' Association.

Table XXXIII

DISTRIBUTION OF THE NUMBER OF ORGANIZATIONS ATTENDED  
AT LEAST ONCE A YEAR FOR ALL RESPONDENTS

Number of organizations* attended	Per cent of all respondents
0	44.8
1	19.3 (median category)
2	15.2
3	9.0
4	4.8
5	3.4
6	2.8
7	0.7

\* excluding a church (per se) and the B.C. Fruit Growers' Association.

Table XXXIV

DISTRIBUTION OF THE NUMBER OF ORGANIZATION CONTRIBUTED  
TO FINANCIALLY FOR ALL RESPONDENTS

Number of organizations contributed to	Per cent of all respondents
0	39.3
1	15.9(median category)
2	14.5
3	6.9
4	3.4
5	4.1
6	6.2
7	0.7
8	5.5
9	0.0
10	2.1
11	0.0
12	0.7
.	
.	
.	
20	0.7

Table XXXV

## DISTRIBUTION OF THE NUMBER OF COMMITTEE MEMBERSHIPS FOR ALL RESPONDENTS

Number of committee memberships	Per cent of all respondents
0	70.3 (median category)
1	13.8
2	8.3
3	3.4
4	3.4
5	0.7

Table XXXVI

DISTRIBUTION OF THE NUMBER OF OFFICES HELD FOR ALL  
RESPONDENTS

Number of Offices Held	Per cent of all respondents
0	74.5 (median category)
1	14.5
2	8.3
3	2.1
4	0.7

Table XXXVII

PERCENTAGE DISTRIBUTION OF YEARS IN AGRICULTURE FOR  
ALL RESPONDENTS

Years in the agriculture industry	Per cent of all respondents
less than 5	2.1
5 - 9	5.5
10 - 19	24.1
20 or more	68.3 (median category)

Table XXXVIII

PERCENTAGE DISTRIBUTION OF YEARS IN ORCHARDING BY  
ADOPTER CATEGORY

Adopter category	Years as an orchardist				Total
	Less than 5	5 - 9	10 - 19	20 or over	
	%	%	%	%	%
Innovators and early adopters	10.0	15.0	30.0	45.0	100.0
Early majority	5.1	13.6	20.3	61.0	100.0
Late majority	9.3	16.3	34.9	39.5	100.0
Laggards	13.0	13.0	52.2	21.7	100.0
All respondents	8.3	14.5	31.0	46.2	100.0

Table XXXIX

PERCENTAGE DISTRIBUTION OF YEARS ON PRESENT ORCHARD  
BY ADOPTER CATEGORY

Adopter category	Years on present orchard					Total
	Less than 1	2 - 4	5 - 9	10-19	20 or over	
	%	%	%	%	%	%
Innovators, early adopters and early majority	1.2	15.2	17.7	32.9	32.9	100.0
Late majority and laggards	7.6	19.7	13.6	43.9	15.1	100.0
All respondents	4.1	17.2	15.9	37.9	24.8	100.0



Table XL

PERCENTAGE DISTRIBUTION OF ACRES IN  
ORCHARD BY ADOPTER CATEGORY

Adopter Category	Acres in orchard:								180 + Total	
	less than	3	3 - 9	10-19	20-39	40-54	55-69	70-179		
		%	%	%	%	%	%	%	%	%
Innovators and early adopters		5.0	10.0	<u>60.0</u>	25.0	0.0	0.0	0.0	0.0	100.0
Early majority		0.0	28.8	<u>28.8</u>	33.9	5.1	1.7	0.0	1.7	100.0
Late majority		9.3	<u>41.9</u>	41.9	4.7	2.3	0.0	0.0	0.0	100.0
Laggards		<u>26.1</u>	56.5	4.4	13.0	0.0	0.0	0.0	0.0	100.0
All respondents		7.6	34.5	<u>33.1</u>	20.7	2.8	0.7	0.0	0.7	100.0

Table XLI

PERCENTAGE DISTRIBUTION OF ENTERPRISE  
VALUE BY ADOPTER CATEGORY

Adopter Category	Value of enterprise in dollars:						Total
	under 4950	4950- 9949	9950- 14949	14950- 24949	24950- 49949	49950- or over	
	%	%	%	%	%	%	%
Innovators and early adopters	5.0	0.0	0.0	15.0	<u>40.0</u>	40.0	100.0
Early majority	0.0	1.8	8.8	35.1	<u>31.6</u>	22.8	100.0
Late majority	0.0	2.3	16.3	<u>46.5</u>	23.3	11.6	100.0
Laggards	0.0	8.7	17.4	<u>43.5</u>	21.7	8.7	100.0
All respondents	0.7	2.8	11.2	<u>38.0</u>	27.6	19.6	100.0

NOTE: The median categories are underlined.

Table XLII

PERCENTAGE DISTRIBUTION OF OCCUPATION BY  
ADOPTER CATEGORY

Adopter category	Full-time orcharding	Part-time orcharding and part-time:								Total
		Other types of agriculture	Managerial	Professional and Technical	Clerical and Sales	Service, recreation, transportation and communication	Loggers, fishermen, miners, etc.	Craftsmen, production process, and related workers	No full-time occupation (invalid, retired, etc.)	
	%	%	%	%	%	%	%	%	%	%
Innovators and early adopters	90.0	0.	0.	10.0	0.	0.	0.	0.	0.	100.0
Early majority	69.5	8.5	5.1	3.4	1.7	1.7	1.7	6.8	1.7	100.0
Late majority	51.2	9.3	7.0	7.0	4.7	4.7	4.7	9.3	2.3	100.0
Laggards	30.4	21.7	8.7	0.	17.4	0.	8.7	4.4	8.7	100.0
All respondents	60.7	9.7	5.5	4.8	4.8	2.1	3.5	6.2	2.8	100.0

NOTE: The classification of part-time occupations is based on Canada, Dominion Bureau of Statistics, Occupational Classification Manual, Census of Canada, 1961.

Table XLIII

PERCENTAGE DISTRIBUTION OF SIZE OF ENTERPRISE BY  
ADOPTER CATEGORY

Adopter category	Size of enterprise in acres								Total
	less than 3	3 - 9	10-19	20-39	40-54	55-69	70- 180 179	+ Total	
	%	%	%	%	%	%	%	%	%
Innovators, early adopters and early majority	1.3	19.0	<u>31.6</u>	35.4	2.5	2.5	1.3	6.3	100.0
Late majority and laggards	13.6	31.8	25.8	21.2	3.0	0.0	1.5	3.0	100.0
All respondents	6.9	24.8	<u>29.0</u>	29.0	2.8	1.4	1.4	1.8	100.0

NOTE: The median categories are underlined.

Table XLIV

## PERCENTAGE DISTRIBUTION OF TENURE BY ADOPTER CATEGORY

Adopter Category	Tenure of decision maker				Total
	Rents only	Rents part owns part	and Owns Only	Manager	
	%	%	%	%	
Innovators and early adopters	0.0	25.0	75.0	0.0	100.0
Early majority	1.7	8.7	89.8	0.0	100.0
Late majority	4.7	2.3	90.7	2.3	100.0
Laggards	0.0	0.0	100.0	0.0	100.0
All respondents	2.1	7.6	89.7	0.7	100.0

Table XLV

## PERCENTAGE DISTRIBUTION OF THE RELATIONSHIPS OF AGRICULTURE AND NON-AGRICULTURE INCOME BY ADOPTER CATEGORY

Adopter Category	Relation of other income to ag. income						Total
	no income other sources	half as much or less	less than but grtr. than half as much	Equal to	Grtr. but less than twice as much	Twice as much or grtr.	
	%	%	%	%	%	%	
Innovators, early adopters and early majority	60.7	15.2	1.3	5.6	3.8	13.9	100.0
Late majority and laggards	46.1	1.5	4.6	9.2	4.6	33.8	100.0
All respondents	54.1	9.0	2.8	6.9	4.2	23.0	100.0

Table XLVIE

PERCENTAGE DISTRIBUTION OF VALUE OF ORCHARD  
PRODUCTS SOLD BY ADOPTER CATEGORY

Adopter category	Value of orchard products sold in 1962:								Total
	less than \$1200	\$1200 to \$2499	\$2500 to \$3749	\$3750 to \$4999	\$5000 to \$9999	\$10000 to \$14999	\$15000 to \$24999	\$25,000 +	
	%	%	%	%	%	%	%	%	
Innovators and early adopters	5.0	0.	0.	15.0	<u>55.0</u>	15.0	10.0	0.	100.0
Early majority	6.8	10.2	11.9	13.6	<u>32.2</u>	10.2	11.9	3.4	100.0
Late majority	23.8	<u>23.8</u>	16.7	2.4	28.6	0.	4.8	0.	100.0
Laggards	47.8	<u>13.0</u>	26.1	8.7	4.4	0.	0.	0.	100.0
All respondents	18.1	13.2	13.9	<u>9.7</u>	29.8	6.2	7.6	1.4	100.0

NOTE: The median categories are underlined.

Table XLVII

DISTRIBUTION OF SCORES FOR WILLINGNESS OF COMMUNITY  
TO ADOPT NEW FARM PRACTICES

Willingness of community to adopt new farm practices	Per cent of respondents answering
Willing	65.3
about average	29.2
not very willing	5.6

Table XLVIII

DISTRIBUTION OF SCORES FOR COMMUNITY REGARD  
OF PEOPLE WHO TRY MANY NEW PRACTICES

Community regard of people who try new practices	Per cent of respondents answering
Favourable	72.5
No feeling	22.5
Not favourable	4.9

Table XLIX

DISTRIBUTION OF SCORES FOR COMMUNITY REGARD  
OF PEOPLE WHO ARE SLOW IN ADOPTING NEW PRACTICES

Community regard of people slow to adopt new practices	Per cent of respondents answering
Favourable	4.3
No feeling	63.1
Not favourable	32.6

Table L

PERCENTAGE DISTRIBUTION OF PERSONAL REACTION TO THE  
T. V. CHAUTAUQUA BY ADOPTER CATEGORY

Statement describing reaction to T.V. Chautauqua	Adopter Category		
	Innovators, early adopters and early majority %	Late major- ity and laggards %	All respon- dents %
(1) It was one of the most rewarding experiences I have ever had	3.4	0.	2.2
(2) It was exactly what I wanted	6.8	0.	4.5
(3) I hope we can have another one next year	27.1	43.3	32.6
(4) It has provided the kind of information I can use in my orchard	<u>37.3</u>	<u>10.0</u>	<u>28.1</u>
(5) It has helped me personally	8.5	13.3	10.0
(6) It has solved some problems for me	6.8	3.3	5.6
(7) I think it served its purpose	5.1	23.3	5.6
(8) It has some merits	3.4	3.3	3.4
(9) It was neither very good nor very poor	0.	0.	0.
(10) I was midly disappointed	0.	0.	0.
(11) It was fair	0.	3.3	1.1
(12) It was not exactly what I needed	1.7	0.	1.1
TOTAL	100.0	100.0	100.0
Weighted average	2.87	3.13	2.98

NOTE: The median categories are underlined.

## **APPENDIX II**

### **DETAILED ANALYSIS OF THE USE OF SOURCES OF INFORMATION**

Table

## SOURCE USE BY STAGES IN THE ADOPTION

Stage in the Adoption Process	CLASSIFICATION OF T Y P E				Total %
	Mass Media	Agric. Agencies	Commer- cial	Infor- mal	
	%	%	%	%	
Awareness	44.3	37.3	6.1	12.3	100.0
Interest	14.8	50.3	10.7	24.2	100.0
Evaluation	10.8	48.9	9.7	30.6	100.0
Trial	14.0	47.4	10.2	28.4	100.0
Adoption	10.6	42.4	8.3	38.7	100.0
Average	21.2	44.9	8.9	25.1	100.0

Table

## SOURCE USE BY STAGES IN THE ADOPTION

Stage in the Adoption Process	CLASSIFICATION OF T Y P E				Total %
	Mass Media	Agric. Agencies	Commer- cial	Infor- mal	
	%	%	%	%	
Awareness	36.2	50.0	1.7	12.0	100.0
Interest	4.3	58.7	8.7	28.2	100.0
Evaluation	5.4	45.9	5.4	43.2	100.0
Trial	5.4	62.2	10.8	21.6	100.0
Adoption	0.0	48.1	7.4	44.4	100.0
Average	13.2	43.0	15.6	27.3	100.0



LI

## PROCESS FOR ALL RESPONDENTS

SOURCES BY:						
M E T H O D			C O N T A C T			
Mass	Group	Indi-	Total	Personal	Imper-	Total
%	%	vidual	%	%	sonal	%
44.5	6.4	49.1	100.0	51.7	48.3	100.0
14.6	10.0	75.4	100.0	78.0	22.0	100.0
9.7	5.4	84.9	100.0	84.3	15.7	100.0
14.0	3.4	82.6	100.0	83.0	17.1	100.0
10.6	12.4	77.0	100.0	82.5	17.5	100.0
20.8	7.3	71.9	100.0	73.7	26.4	100.0

LII

## PROCESS FOR INNOVATORS AND EARLY ADOPTERS

SOURCES BY:						
M E T H O D			C O N T A C T			
Mass	Group	Indivi-	Total	Personal	Imper-	Total
%	%	dual	%	%	sonal	%
36.2	12.1	51.7	100.0	56.9	43.1	100.0
4.3	15.2	80.4	100.0	89.1	10.9	100.0
5.4	2.7	91.9	100.0	91.9	8.1	100.0
5.4	5.4	89.2	100.0	89.2	10.8	100.0
0.0	7.4	92.6	100.0	92.6	7.4	100.0
13.2	9.3	77.6	100.0	81.0	19.0	100.0

Table

## SOURCE USE BY STAGES IN THE ADOPTION PROCESS

Stage in the Adoption Process	CLASSIFICATION				
	T Y P E				Total
	Mass Media	Agric. Agencies	Commer- cial	Infor- mal	
	%	%	%	%	%
Awareness	43.2	45.1	4.9	6.8	100.0
Interest	13.0	54.3	10.9	21.7	100.0
Evaluation	7.6	56.6	13.6	22.0	100.0
Trial	13.8	49.5	11.9	29.8	100.0
Adoption	8.2	51.8	9.4	30.6	100.0
Average	19.4	44.4	16.5	19.6	100.0

Table

## SOURCE USE BY STAGES IN THE ADOPTION PROCESS

Stage in the Adoption Process	CLASSIFICATION				
	T Y P E				Total
	Mass Media	Agric. Agencies	Commer- cial	Infor- mal	
	%	%	%	%	%
Awareness	52.1	25.2	7.6	15.1	100.0
Interest	18.1	43.6	11.7	26.6	100.0
Evaluation	13.6	44.4	7.4	34.6	100.0
Trial	15.7	43.4	7.2	33.7	100.0
Adoption	12.2	33.8	6.8	47.3	100.0
Average	24.8	30.6	14.9	29.7	100.0

## LIII

## FOR THE EARLY MAJORITY

OF SOURCES BY:				C O N T A C T		
M E T H O D						
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
43.8	6.9	49.4	100.0	51.9	48.1	100.0
12.8	7.8	79.4	100.0	77.9	22.1	100.0
7.6	7.6	84.7	100.0	86.1	13.9	100.0
13.8	2.8	83.5	100.0	83.5	16.5	100.0
8.2	18.8	72.9	100.0	80.0	20.0	100.0
19.4	8.16	72.43	100.0	73.4	26.6	100.0

## LIV

## FOR THE LATE MAJORITY

OF SOURCES BY:				C O N T A C T		
M E T H O D						
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
52.1	4.2	43.7	100.0	46.2	53.8	100.0
18.1	7.4	74.5	100.0	78.1	21.9	100.0
13.6	4.9	81.5	100.0	83.5	16.5	100.0
15.7	3.6	80.7	100.0	81.9	18.1	100.0
12.2	8.1	79.7	100.0	85.1	14.9	100.0
24.8	5.5	69.6	100.0	72.8	27.2	100.0

Table

## SOURCE USE BY STAGES IN THE ADOPTION

Stage in the Adoption Process	CLASSIFICATION OF				
	T Y P E				
	Mass Media	Agric. Agencies	Commer- cial	Informal	Total
	%	%	%	%	%
Awareness	38.5	26.9	11.5	23.1	100.0
Interest	25.0	42.5	10.0	22.5	100.0
Evaluation	21.9	34.4	6.3	37.3	100.0
Trial	20.0	34.3	11.4	34.3	100.0
Adoption	22.6	32.6	9.7	35.5	100.0
Average	26.8	29.5	14.2	29.5	100.0

LV

## PROCESS FOR THE LAGGARDS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
38.5	53.8	57.7	100.0	57.7	42.3	100.0
25.0	17.5	57.5	100.0	65.0	35.0	100.0
11.3	3.2	85.5	100.0	71.9	28.1	100.0
20.0	2.9	77.1	100.0	77.1	22.9	100.0
22.6	9.7	67.7	100.0	74.2	25.8	100.0
23.2	6.8	70.0	100.0	67.9	32.1	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR ALL STAGES IN THE

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	13.2	43.9	15.6	27.3	100.0
Early majority	19.4	44.4	16.5	19.6	100.0
Late majority	24.8	30.6	14.9	29.7	100.0
Laggards	26.8	29.5	14.2	29.5	100.0
Average	21.2	38.1	15.6	25.1	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR THE AWARENESS

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	36.2	50.0	1.7	12.1	100.0
Early majority	43.2	45.1	4.9	6.8	100.0
Late majority	52.1	25.2	7.6	15.1	100.0
Laggards	38.5	26.9	11.5	23.1	100.0
Average	44.2	37.3	6.1	12.3	100.0

## LVI

## ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
13.2	9.3	77.6	100.0	81.0	19.0	100.0
19.4	8.2	72.4	100.0	73.4	26.6	100.0
24.8	5.5	69.6	100.0	72.8	27.2	100.0
23.2	6.8	70.0	100.0	76.9	32.1	100.0
20.8	7.3	71.9	100.0	73.6	26.4	100.0

## LVII

## STAGE IN THE ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
36.2	12.1	51.7	100.0	56.9	43.1	100.0
43.8	6.9	49.4	100.0	51.9	48.1	100.0
52.1	4.2	43.7	100.0	46.2	53.8	100.0
38.5	3.8	57.7	100.0	57.7	42.3	100.0
44.5	6.4	49.1	100.0	51.7	48.3	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR THE

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	4.3	58.7	8.7	28.3	100.0
Early majority	13.0	54.3	10.9	21.7	100.0
Late majority	18.1	43.6	11.7	26.6	100.0
Laggards	25.0	42.5	10.0	22.5	100.0
Average	14.8	50.3	10.7	24.2	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR THE

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	5.4	45.9	5.4	43.2	100.0
Early majority	7.6	56.8	13.8	22.0	100.0
Late majority	13.6	44.4	7.4	34.6	100.0
Laggards	21.9	34.4	6.3	37.5	100.0
Average	10.8	48.9	9.7	30.6	100.0



## LVIII

## INTEREST STAGE IN THE ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
4.3	15.2	80.4	100.0	89.1	10.9	100.0
12.8	7.8	79.4	100.0	77.9	22.1	100.0
18.1	7.4	74.5	100.0	78.1	21.9	100.0
25.0	17.5	57.5	100.0	65.0	35.0	100.0
14.6	10.0	75.4	100.0	78.0	22.0	100.0

## LIX

## EVALUATION STAGE IN THE ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
5.4	2.7	91.9	100.0	91.9	8.1	100.0
7.6	7.6	84.7	100.0	86.1	13.9	100.0
13.6	4.9	81.5	100.0	83.5	16.5	100.0
11.3	3.2	85.5	100.0	71.9	28.1	100.0
9.7	5.4	84.9	100.0	84.3	15.7	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR THE

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	5.4	62.2	10.8	21.6	100.0
Early majority	13.8	49.5	11.9	24.8	100.0
Late majority	15.7	43.4	7.2	33.7	100.0
Laggards	20.0	34.3	11.4	34.3	100.0
Average	14.0	47.3	10.2	47.3	100.0

Table

## SOURCE USE BY ADOPTER CATEGORIES FOR THE

Adopter Category	CLASSIFICATION OF T Y P E				
	Mass Media	Agric. Agencies	Commercial	Informal	Total
	%	%	%	%	%
Innovators and early adopters	0.0	48.1	7.4	44.4	100.0
Early majority	8.2	51.8	9.4	30.6	100.0
Late majority	12.1	33.8	6.8	47.3	100.0
Laggards	22.6	32.3	9.7	35.5	100.0
Average	10.6	42.4	8.3	38.7	100.0

## LX

## TRIAL STAGE IN THE ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
5.4	5.4	89.2	100.0	89.2	10.8	100.0
13.8	2.8	83.5	100.0	83.5	16.5	100.0
15.7	3.6	80.7	100.0	81.9	18.1	100.0
20.0	2.9	77.1	100.0	77.1	22.9	100.0
14.0	3.4	82.6	100.0	83.0	17.0	100.0

## LXI

## ADOPTION STAGE IN THE ADOPTION PROCESS

SOURCES BY:						
M E T H O D				C O N T A C T		
Mass	Group	Individual	Total	Personal	Impersonal	Total
%	%	%	%	%	%	%
0.0	7.4	92.6	100.0	92.6	7.4	100.0
8.2	18.8	72.9	100.0	80.0	20.0	100.0
12.2	8.1	79.7	100.0	85.1	14.9	100.0
22.6	9.7	67.7	100.0	74.2	25.8	100.0
10.6	12.4	77.0	100.0	82.5	17.5	100.0

Table LXII

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE INTEREST  
STAGE IN THE ADOPTION PROCESS BY ADOPTER CATEGORY

Source of Information	Adopter Category				
	Inno- vators and early adopters	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	0.	0.7	0.	2.5	0.6
Magazines	2.2	2.9	6.4	5.0	4.1
Radio	0.	2.2	2.1	2.5	1.9
T.V.	0.	0.	1.1	5.0	0.9
T.V. Chautauqua	2.2	0.7	0.	2.5	0.9
Summerland research station	21.7	13.8	10.6	5.0	12.9
District hall chautauqua	0.	1.4	1.1	0.	0.9
District horticulturist discussion groups	2.2	2.2	0.	2.5	1.6
Agriculture meeting and adult education courses	6.5	1.4	3.2	7.5	3.5
Salesmen and dealers	6.5	2.2	3.2	5.0	3.5
District horticulturist	28.3	34.8	28.7	25.0	30.8
Employees	0.	0.	0.	2.5	0.3
Vocational agriculture teacher	0.	0.	0.	0.	0.
Neighbours	2.2	5.8	5.3	7.5	5.3
Other orchardists	21.7	11.6	20.2	12.5	15.7
Relatives	0.	0.	0.	0.	0.
Field days	0.	0.7	0.	2.5	0.6
Packing houses	0.	1.4	1.1	0.	0.9
Co-operative	2.2	5.1	5.3	5.0	4.7
U.B.C.	0.	0.	0.	0.	0.
Vocational agriculture courses	0.	0.	0.	0.	0.
Foreign	2.2	0.	0.	0.	6.3
University courses in agric.	0.	0.	0.	0.	0.
B.C. Department of Agriculture publications	0.	4.3	5.3	7.5	4.4
Canada Dept. of Agricult. Publications	0.	2.2	2.1	0.	1.6
B.C. Tree Fruits	0.	2.2	2.1	0.	1.6
B.C. Fruit Growers Assn.	2.2	4.3	1.1	0.	2.5
Total	100.0	100.0	100.0	100.0	100.0

Table LXIII  
PERCENTAGE DISTRIBUTION OF OVERALL SOURCE USE BY  
ADOPTER CATEGORY

Source of Information	Adopter Category				
	Inno- vators and early adopters	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	0.2	1.1	1.1	2.3	1.1
Magazines	11.1	7.1	10.1	7.1	8.6
Radio	2.1	1.5	2.4	2.3	1.9
T.V.	1.9	2.3	3.3	7.1	3.0
T.V. Chautauqua	9.9	7.9	7.7	6.8	8.0
Summerland research station	15.6	13.2	5.6	3.2	10.3
District hall chautauqua	5.1	4.8	3.1	1.3	4.0
District horticulturist discussion groups	1.7	1.3	1.3	0.3	1.2
Agriculture meeting and adult education courses	5.1	3.0	2.5	2.6	3.2
Salesmen and dealers	4.5	4.5	4.6	4.9	4.6
District horticulturist	15.8	22.4	18.2	17.8	20.0
Employees	0.2	0.	0.1	1.6	0.2
Vocational agriculture teacher	0.	0.	0.	0.	0.
Neighbours	3.2	3.9	5.5	8.1	4.7
Other orchardists	12.6	12.3	17.7	18.1	14.5
Relatives	1.1	0.6	1.0	1.0	0.8
Field days	0.9	1.3	0.6	2.3	1.1
Packing houses	0.	0.4	0.1	0.3	0.2
Co-operative	0.9	2.8	2.7	3.9	2.6
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	1.9	0.1	0.	0.	0.3
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept. of Agric. Pub.	2.1	4.3	6.3	5.2	4.6
Canada Dept. of Agric. Pub.	1.9	2.8	3.9	1.9	2.9
B.C. Tree Fruits	0.	1.2	0.7	0.	0.7
B.C. Fruit Growers Assn.	1.9	1.4	1.5	1.9	1.6
Total	100.0	100.0	100.0	100.0	100.0

Table LXIV

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE AWARENESS  
STAGE IN THE ADOPTION PROCESS BY ADOPTER CATEGORY

Source of Information	Adopter Category				
	Inno- vators and early adopters	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	1.7	2.5	2.5	4.0	2.6
Magazines	13.8	13.0	16.0	10.0	13.6
Radio	5.2	3.1	7.6	6.0	5.1
T.V.	1.7	8.0	10.9	8.0	8.0
T.V. Chautauqua	10.3	11.1	8.4	6.0	9.5
Summerland research station	10.3	11.3	5.9	6.0	9.3
District hall chautauqua	3.4	2.5	0.	0.	1.5
District horticulturist discussion groups	5.2	1.9	2.5	0.	2.3
Agriculture meeting and adult education groups	3.4	1.9	0.8	4.0	2.1
Salesmen and dealers	0.	0.6	3.4	4.0	2.1
District horticulturist	20.7	22.2	14.3	18.0	19.0
Employees	0.	0.	0.	2.0	0.3
Vocational agric. teacher	0.	0.	0.	0.	0.
Neighbours	3.4	2.5	5.9	6.0	4.1
Other orchardists	6.9	4.3	8.4	14.0	7.2
Relatives	0.	0.	0.8	2.0	0.5
Field days	0.	0.6	0.8	0.	0.5
Packing houses	0.	0.	0.	2.0	0.3
Co-operative	1.7	2.5	2.5	2.0	2.3
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	1.7	0.	0.	0.	0.3
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept.of Agric.Pub.	1.7	3.7	4.2	6.0	3.9
Canada Dept.of Agric.Pub.	1.7	1.9	2.5	0.	1.8
B.C. Tree Fruits	0.	1.9	1.7	0.	1.3
B.C. Fruit Growers Assn.	6.9	3.7	0.8	0.	2.8
Total	100.0	100.0	100.0	100.0	100.0

Table LXV

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE  
EVALUATION STAGE IN THE ADOPTION PROCESS BY ADOPTER  
CATEGORY

Source of Information	Adopter Category				
	Inno- vation and early adopter	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	0.	0.	0.	3.1	0.4
Magazines	2.7	0.9	0.	3.1	1.1
Radio	0.	0.9	1.2	3.1	1.1
T.V.	2.7	0.	1.2	6.3	1.5
T.V. Chautauqua	0.	0.9	0.	3.1	0.7
Summerland research station	21.6	16.1	7.4	6.3	13.1
District hall chautauqua	0.	2.5	0.	0.	1.1
District horticulturist discussion groups	0.	2.5	0.	0.	1.1
Agriculture meeting and adult education courses	2.7	2.5	4.9	3.1	3.4
Salesmen and dealers	6.5	5.9	3.7	3.1	4.9
District horticulturist	21.6	32.2	30.9	21.9	29.1
Employees	2.7	0.	0.	3.1	0.7
Vocational agric. teacher	0.	0.	0.	0.	0.
Neighbours	10.8	5.9	8.6	12.5	8.2
Other orchardists	24.3	15.3	24.7	21.9	20.1
Relatives	2.7	0.8	1.2	0.	1.1
Field days	0.	0.	0.	3.1	0.4
Packing houses	0.	0.8	0.	0.	0.4
Co-operative	0.	5.1	3.7	3.1	3.7
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	2.7	0.	0.	0.	0.4
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept. of Agric. Pub.	0.	4.2	7.4	3.1	4.5
Canada Dept. of Agric. Pub.	0.	0.8	3.7	0.	1.5
B.C. Tree Fruits	0.	1.7	0.	0.	0.7
B.C. Fruit Growers Assn.	0.	0.8	1.2	0.	0.7
Total	100.0	100.0	100.0	100.0	100.0

Table LXVI

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE TRIAL  
STAGE IN THE ADOPTION PROCESS BY ADOPTER CATEGORY

Source of Information	Adopter Category				
	Inno- vators and early adopters	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	0.	0.	0.	2.9	0.4
Magazines	2.7	2.7	4.8	2.9	3.4
Radio	2.7	1.8	0.	2.9	1.5
T.V.	0.	0.	1.2	5.7	1.1
T.V. Chautauqua	0.	0.9	1.2	2.9	1.1
Summerland research station	24.3	13.8	7.2	2.9	11.7
District hall chautauqua	0.	0.	0.	0.	0.
District horticulturist discussion groups	0.	0.	1.2	0.	0.4
Agriculture meeting and adult education courses	2.7	0.9	2.4	0.	1.5
Salesmen and dealers	8.1	3.7	2.4	5.7	4.2
District horticulturist	29.7	33.0	30.1	28.6	31.1
Employees	0.	0.	0.	2.9	0.4
Vocational agric. teacher	0.	0.	0.	0.	0.
Neighbours	2.7	6.4	7.2	8.6	6.4
Other orchardists	18.9	16.5	26.5	22.9	20.8
Relatives	0.	0.9	0.	0.	0.4
Field days	2.7	1.8	0.	2.9	1.5
Packing houses	0.	0.	0.	0.	0.
Co-operative	2.7	6.4	4.8	5.7	5.3
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	0.	0.9	0.	0.	0.
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept. of Agric. Pub.	0.	4.6	6.0	2.9	4.2
Canada Dept. of Agric. Pub.	0.	3.7	2.4	0.	2.3
B.C. Tree Fruits	0.	1.8	0.	0.	0.8
B.C. Fruit Growers Assn.	2.7	0.	2.4	0.	1.1
Total	100.0	100.0	100.0	100.0	100.0



Table LXVII

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE ADOPTION  
STAGE IN THE ADOPTION PROCESS BY ADOPTER CATEGORY

Source of Information	Adopter Category				
	Inno- vators and early adopters	Early major- ity	Late major- ity	Lag- gards	Total
	%	%	%	%	%
Newspapers	0.	0.	0.	3.2	0.5
Magazines	0.	0.	2.7	3.2	1.4
Radio	0.	0.	0.	3.2	0.5
T.V.	0.	0.	0.	3.2	0.5
T.V. Chautauqua	0.	1.2	1.4	3.2	1.4
Summerland research station	14.8	7.1	2.7	0.	5.5
District hall chautauqua	0.	0.	0.	0.	0.
District horticulturist discussion groups	0.	0.	1.4	0.	0.5
Agriculture meeting and adult education courses	0.	1.2	1.4	0.	0.9
Salesmen and dealers	7.4	0.	2.7	3.2	2.3
District horticulturist	25.9	32.9	25.7	29.0	29.0
Employees	0.	0.	1.4	3.2	0.9
Vocational agric. teacher	0.	0.	0.	0.	0.
Neighbours	11.1	5.9	12.2	9.7	9.2
Other orchardists	22.2	21.2	27.0	19.4	23.0
Relatives	11.1	3.5	6.8	3.2	5.5
Field days	7.4	10.6	1.4	3.2	6.0
Packing houses	0.	1.2	0.	0.	0.5
Co-operative	0.	7.1	4.1	6.5	5.1
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	0.	0.	0.	0.	0.
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept. of Agric. Pub.	0.	2.4	4.1	3.2	3.7
Canada Dept. of Agric. Pub.	0.	2.4	2.7	0.	1.8
B.C. Tree Fruits	0.	1.2	0.	0.	0.5
B.C. Fruit Growers Assn.	0.	0.	1.4	0.	0.5
Total	100.0	100.0	100.0	100.0	100.0

Table LXVIII

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE  
PRE-CHAUTAUQUA INNOVATIONS

Source of Information	Innovation				All Pre- chau- tauqua innova- tions
	Dwar- fing root stocks	Low vol. spray- ers	Hardy frame works	Power take- off sprayers	
	%	%	%	%	%
Newspapers	0.7	0.8	1.3	0.	0.7
Magazines	12.3	7.5	14.2	8.6	10.8
Radio	0.	0.4	1.7	0.5	0.6
T.V.	2.7	2.4	0.9	5.9	2.8
T.V. Chautauqua	4.7	1.6	3.9	5.4	3.8
Summerland research station	11.7	17.8	11.2	15.1	13.8
District hall chautauqua	11.3	6.7	13.3	9.1	10.2
District horticulturist discussion groups	0.3	0.4	1.7	0.	0.6
Agriculture meeting and adult education courses	4.7	3.2	6.0	3.8	4.4
Salesmen and dealers	6.3	9.9	2.1	12.4	7.4
District horticulturist	12.3	11.9	18.5	8.6	13.0
Employees	0.	0.	0.	0.	0.
Vocational agric. teachers	0.	0.	0.	0.	0.
Neighbours	4.0	5.1	2.6	3.2	3.8
Other orchardists	14.7	21.3	8.2	17.7	15.4
Relatives	0.	0.	0.4	0.	0.1
Field days	0.3	1.6	0.	2.2	0.9
Packing houses	0.	0.	0.	0.	0.
Co-operative	2.3	1.2	0.9	0.	1.2
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	0.3	0.	0.4	0.5	0.3
University courses in agric.	0.	0.	0.	0.	0.
B.C. Dept. of Agric. Pub.	3.0	2.8	5.2	1.6	3.2
Canada Dept. of Agric. Pub.	5.0	4.0	5.6	3.8	4.6
B.C. Tree Fruits	0.7	0.4	0.9	0.	0.5
B.C. Fruit Growers Assn.	2.7	1.2	1.3	1.6	1.7
Total	100.0	100.0	100.0	100.0	100.0

Table LXIX

PERCENTAGE DISTRIBUTION OF SOURCE USE FOR THE  
CHAUTAUQUA INNOVATIONS AND ALL INNOVATIONS

Source of Information	Innovation				
	Four	Moristan	Central	Chaut-	All
	way	and	Leader	auqua	inno-
	spray-	Moro-	pruning	inno-	va-
	ing	cide		va-	tions
	%	%	%	%	%
Newspapers	2.7	0.6	3.0	2.0	1.1
Magazines	14.7	11.9	15.2	13.7	11.7
Radio	5.4	2.8	1.0	3.5	1.5
T.V.	5.4	1.7	4.0	3.7	3.1
T.V. Chautauqua	36.4	30.5	26.3	32.0	12.8
Summerland research station	0.	2.3	5.1	1.0	10.0
District hall chautauqua	0.	0.6	3.0	0.9	7.2
District horticulturist					
discussion groups	3.3	2.8	0.	1.4	1.2
Agriculture meeting and					
adult education courses	1.6	2.8	6.1	3.0	4.0
Salesmen and dealers	1.6	5.7	0.	2.8	5.9
District horticulturist	8.2	13.6	6.1	9.8	11.9
Employees	0.	0.	0.	0.	0.
Vocational agric. teacher	0.	0.	0.	0.	0.
Neighbours	2.2	1.1	1.0	1.5	3.1
Other orchardists	7.6	4.5	11.1	7.2	12.8
Relatives	1.6	0.6	1.0	1.1	0.4
Field days	0.	0.	1.0	0.2	0.7
Packing houses	0.	0.6	0.	0.2	0.1
Co-operative	0.5	1.1	0.	0.7	1.0
U.B.C.	0.	0.	0.	0.	0.
Vocational agric. courses	0.	0.	0.	0.	0.
Foreign	0.	0.6	2.0	0.7	0.4
University courses in agric.	0.	0.	0.	0.	0.
B.C.Dept.of Agric. Pub.	6.0	14.1	6.1	9.1	5.1
Canada Dept.of Agric. Pub.	0.5	1.7	8.1	2.6	4.0
B.C. Tree Fruits	0.5	0.	0.	0.2	0.4
B.C. Fruit Growers Assn.	1.6	0.6	0.	0.9	1.5
Total	100.0	100.0	100.0	100.0	100.0

### **APPENDIX III**

#### **DISTRIBUTION OF STAGES IN THE ADOPTION PROCESS BY INNOVATION**

Table LXX

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR DWARFING  
ROOT STOCKS BY ADOPTER CATEGORY

Adopter category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware	Aware-ness	Inter-est	Evaluation	Trial	Adop-tion	
	%	%	%	%	%	%	%
Innovators and early adopters	0.	0.	0.	0.	15.0	85.0	100.0
Early majority	0.	1.7	10.2	11.9	17.0	59.3	100.0
Late majority	0.	11.6	20.9	7.0	14.0	46.5	100.0
Laggards	13.0	52.2	13.0	8.7	4.4	8.7	100.0

Table LXXI

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR LOW  
VOLUME SPRAYERS BY ADOPTER CATEGORY

Adopter category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware	Aware-ness	Inter-est	Evaluation	Trial	Adop-tion	
	%	%	%	%	%	%	%
Innovators and early adopters	0.	0.	0.	0.	0.	100.0	100.0
Early majority	0.	0.	1.7	13.6	3.4	81.4	100.0
Late majority	7.0	18.6	16.3	18.6	4.7	39.9	100.0
Laggards	17.4	39.1	8.7	13.0	4.4	17.4	100.0

Table LXXII

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR  
HARDY FRAME WORKS BY ADOPTER CATEGORY

Adopter category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware	Aware-ness	Inter-est	Evalu-ation	Trial	Adop-tion	
	%	%	%	%	%	%	%
Innovators and early adopters	0.	5.0	0.	10.0	5.0	80.0	100.0
Early majority	0.	15.3	3.4	11.9	5.1	64.4	100.0
Late majority	16.3	20.9	9.3	9.3	4.7	39.5	100.0
Laggards	69.6	26.1	0.	0.	0.	4.4	100.0

Table LXXIII

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR  
POWER TAKE-OFF SPRAYERS

Adopter Category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware	Aware-ness	Inter-est	Evalu-ation	Trial	Adop-tion	
	%	%	%	%	%	%	%
Innovators and early adopters	0.	10.0	5.0	75.0	0.	60.0	100.0
Early majority	6.8	20.3	13.6	22.0	5.1	32.2	100.0
Late majority	18.6	32.6	23.3	18.6	0.	7.0	100.0
Laggards	47.8	34.8	0.	8.7	0.	8.7	100.0

Table LXXIV

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR  
FOUR-WAY SPRAYING BY ADOPTER CATEGORY

Adopter category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware %	Aware-ness %	Inter-est %	Evalu-ation %	Trial %	Adop-tion %	
Innovators and early adopters	0.	10.5	15.8	26.3	0.	47.4	100.0
Early majority	9.1	40.0	14.6	20.0	0.	16.4	100.0
Late majority	11.4	40.0	14.6	20.0	0.	8.6	100.0
Laggards	18.8	62.5	12.5	0.	0.	6.3	100.0

Table LXXV

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR  
MORISTAN AND MOROCIDE BY ADOPTER CATEGORY

Adopter Category	Stage in the adoption process						Total
	0	1	2	3	4	5	
	Not aware %	Aware-ness %	Inter-est %	Evalu-ation %	Trial %	Adop-tion %	
Innovators and early adopters	0.	15.8	21.1	31.6	0.	31.6	100.0
Early majority	3.7	33.3	33.3	14.8	1.9	13.0	100.0
Late majority	15.2	57.6	12.1	9.1	3.0	3.0	100.0
Laggards	50.0	42.9	7.1	0.	0.	0.	100.0

Table LXXVI

PERCENTAGE DISTRIBUTION OF ADOPTION STAGES FOR CENTRAL  
LEADER PRUNING BY ADOPTER CATEGORY

Adopter category	Stage in the adoption process						Total
	0 Not aware %	1 Aware- ness %	2 Inter- est %	3 Evalu- ation %	4 Trial %	5 Adop- tion %	
Innovators and early adopters	0.	44.4	0.	11.1	5.6	38.9	100.0
Early majority	28.3	54.4	6.5	2.2	2.2	6.5	100.0
Late majority	38.7	51.6	3.2	0.	0.	6.5	100.0
Laggards	88.9	0.	11.1	0.	0.	0.	100.0



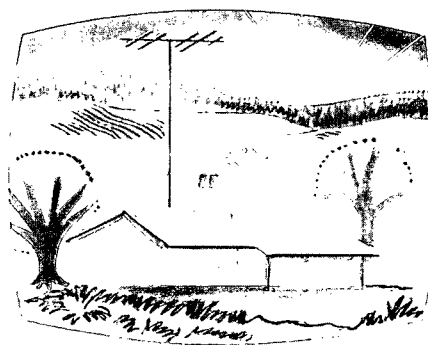
#### **APPENDIX IV**

**A. PROGRAM OF THE 1964 T.V. CHAUTAUQUA**

**B. INTERVIEW SCHEDULE USED**

**A. PROGRAM OF THE 1964 T. V. CHAUTAUQUA**

**the  
Fruit Growers  
1964  
Sunrise  
Chautauqua**



**on CHBC - T.V.**

**THE FRUIT GROWERS'  
1964 SUNRISE CHAUTAUQUA**

*on*

**CHBC - TV**

Sponsored and produced by the British Columbia Department of Agriculture in co-operation with the Canada Department of Agriculture, British Columbia Tree Fruits Ltd., Barkwills Ltd., Osoyoos Co-operative Growers, Northwest Wholesale Inc. of Wenatchee, the B.C.F.G.A. and several of its grower members, and television station CHBC-TV.

The time: 8.30 to 10 a.m.

The place: At home.

The dates: January 27, 28, 29, 30, and 31, 1964.

## A. PROGRAM OF THE 1964 T. V. CHAUTAUQUA

The 1963 television broadcasts met with a most favourable response. This series is again being offered through television on CHBC-TV.

The programmes are designed to cover the most pressing orchard problems, especially pest control, planting, and harvesting. If any points are missed, growers may phone questions in and they will be dealt with on the last day, Friday, January 31.

The Chautauqua Committee wishes to express its appreciation to those participating. In many cases they are taking part at considerable inconvenience to themselves.

Chautauqua Chairman: Mr. John A. Smith.

Director of Production: Mr. R. M. Wilson.

### PROGRAMME

MONDAY, JANUARY 27, 8.30 A.M.

#### *Pest Control*

MODERATOR: Mr. J. C. Arrand.

PANEL: Mr. A. D. McMechan, Mr. R. Downing, Dr. D. L. McIntosh, Mr. J. E. Swales.

TOPICS: Insect and mite resistance, air blast sprayers, insect and disease control in the dormant and pre-pink periods.

TUESDAY, JANUARY 28, 8.30 A.M.

#### *Pest Control*

MODERATOR: Mr. J. C. Arrand.

PANEL: Dr. M. D. Proverbs, Dr. L. E. Lopatecki, Mr. A. Watt, Mr. R. Downing.

TOPICS: Continuation of insect and disease control in the pre-pink and pink periods and proceeding through blossom and husk fall, summer and fall periods.

## A. PROGRAM OF THE 1964 T. V. CHAUTAUQUA

WEDNESDAY, JANUARY 29, 8.30 A.M.

*Apple Maturity and Harvest*

*Peach Maturity and Harvest*

MODERATOR: Mr. John A. Smith.

PANEL ON APPLES: Mr. Noble O. Law, Mr. H. J. Van Ackeren,  
Mr. J. C. Clarke.

TOPICS: Maturity, errors in harvesting, desired qualities, picking  
procedures, results of harvesting research in Washington.

PANEL ON PEACHES: Mr. D. Sutherland, Mr. E. Tait, Mr. W. Dell,  
Mr. H. J. Barkwill.

TOPICS: Maturity, cullage, varieties, packing-house and cannery  
peaches, orchard methods.

THURSDAY, JANUARY 30, 8.30 A.M.

*What to Plant*

MODERATOR: W. F. Morton.

PANEL: Mr. D. C. Stevenson, Mr. W. D. Christie, Dr. D. Heinicke,  
Dr. D. V. Fisher.

TOPICS: Marketing and varieties, certified budwood, rootstocks,  
frames, hardiness.

FRIDAY, JANUARY 31, 8.30 A.M.

*Questions and Answers*

MODERATOR: Mr. M. G. Oswell.

PANEL: Mr. W. F. Morton, Dr. D. V. Fisher, Dr. D. L. McIntosh,  
Mr. J. C. Arrand, Mr. H. J. Van Ackeren, Mr. K. Williams,  
Mr. R. Downing.

TOPIC: This panel will deal with questions phoned or sent in.

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Orchardists are asked to phone questions in to CHBC-TV. An  
endeavour will be made to answer all questions on Friday, Janu-  
ary 31.

Phone questions to CHBC-TV (phone 762-4535) on Friday,  
January 31.

## B. INTERVIEW SCHEDULE USED

## INTRODUCTION

Hello, I'm \_\_\_\_\_ from the British Columbia Department of Agriculture. We're conducting a survey of orchardists in the Okanagan Valley, and I would like to ask you some questions about yourself and your orchard. All information you give me will be strictly confidential, and will be used for statistical summaries only.

## A. TO START, I'D LIKE TO ASK A FEW QUESTIONS ABOUT YOURSELF.

## 1. What is your age?

- |                 |              |   |
|-----------------|--------------|---|
| 1. less than 20 | 1.           | 1 |
| 2. 20 - 24      |              | 2 |
| 3. 25 - 34      |              | 3 |
| 4. 35 - 44      | (circle one) | 4 |
| 5. 45 - 54      |              | 5 |
| 6. 55 - 64      |              | 6 |
| 7. 65 or over   |              | 7 |

## 2. What is the highest year you finished in school?

- |                                   |              |   |
|-----------------------------------|--------------|---|
| 1. less than 5                    | 2.           | 1 |
| 2. 5 - 8                          |              | 2 |
| 3. 9 - 11                         |              | 3 |
| 4. high school diploma (grade 12) | (circle one) | 4 |
| 5. senior matriculation           |              | 5 |
| 6. university degree              |              | 6 |
| 7. university graduate work       |              | 7 |

## 3. Have you taken any agriculture courses?

- in high school?

- |        |    |   |
|--------|----|---|
| 1. yes | 3. | 1 |
| 2. no  |    | 2 |

- at university?

- |        |    |   |
|--------|----|---|
| 1. yes | 4. | 1 |
| 2. no  |    | 2 |

## 4. Have you taken any adult courses?

- in agriculture

- |        |    |   |
|--------|----|---|
| 1. yes | 5. | 1 |
| 2. no  |    | 2 |

- in other subjects

- |        |    |   |
|--------|----|---|
| 1. yes | 6. | 1 |
| 2. no  |    | 2 |

## 5. Did you attend the Orchardists' Chautauqua when it was held regularly in district halls?

- |        |    |   |
|--------|----|---|
| 1. yes | 7. | 1 |
| 2. no  |    | 2 |

## 6. Do you attend discussion groups with your district horticulturist and other orchardists?

- |        |    |   |
|--------|----|---|
| 1. yes | 8. | 1 |
| 2. no  |    | 2 |

7. Do you enjoy your work as an orchardist?
1. very much
  2. occasionally
  3. not at all
9. 1  
2  
3
8. Do you subscribe to a local newspaper or newspapers?
1. yes
  2. no
10. 1  
2
9. Do you regularly receive any farm magazines or magazines other than "Country Life"?
1. yes
  2. no
11. 1  
2
10. How many organizations do you belong to? 12,13. \_\_\_\_
11. How many organizations do you attend at least once a year? 14,15. \_\_\_\_
12. To how many organizations do you make a contribution for support? 16,17. \_\_\_\_
13. How many committees of these organizations do you belong to? 18,19. \_\_\_\_
14. How many offices of these organizations do you hold? 20,21. \_\_\_\_
15. How many years have you been working in the agricultural industry?
1. less than 5
  2. 5 - 9
  3. 10 - 19
  4. 20 or over
22. 1  
2  
3  
4
16. How many years have you been an orchardist?
1. less than 5
  2. 5 - 9
  3. 10 - 19
  4. 20 or over
23. 1  
2  
3  
4
17. How many years have you been on the present orchard?
1. less than 1
  2. 2 - 4
  3. 5 - 9
  4. 10 - 19
  5. 20 or over
24. 1  
2  
3  
4  
5
18. Is fruit-growing your full-time or part-time occupation? (if full time, circle 1)  
If part-time, what is your full-time occupation? \_\_\_\_\_
25. 1  
2  
3  
4  
5  
6

B. NEXT, I'D LIKE TO ASK ABOUT YOUR ORCHARD:

1. What is the total size of this enterprise, in acres?
  1. less than 3 26. 1
  2. 3 - 9 2
  3. 10 - 19 3
  4. 20 - 39 4
  5. 40 - 54 5
  6. 55 - 69 6
  7. 70 - 179 7
  8. 180 or more 8
  
2. How many acres do you have in orchard?
  1. less than 3 27. 1
  2. 3 - 9 2
  3. 10 - 19 3
  4. 20 - 39 4
  5. 40 - 54 5
  6. 55 - 69 6
  7. 70 - 179 7
  8. 180 or more 8
  
3. What would you pay for this enterprise to own and operate it?
  1. under \$4950 28. 1
  2. \$4950 - \$9949 2
  3. \$9950 - \$14,949 3
  4. \$14,950 - \$24,949 4
  5. \$24,950 - \$49,949 5
  6. \$49,950 - or over 6
  
4. Do you rent this orchard, own part and rent part of it, or own it entirely?
  1. rent 29. 1
  2. both (. . . . . acres owned, . . . . . acres rented) 2
  3. own 3
  
5. Do you have income from sources other than your orchard and farming operations? If so, how is this income related to your income from agriculture?
  1. no income from other sources 30. 1
  2. half as much or less 2
  3. less than, but greater than half as much 3
  4. equal to 4
  5. greater, but less than twice as much 5
  6. twice as much or greater 6
  
6. What was your total value of orchard products sold in 1962?
  1. nil 31. 1
  2. less than \$1200 2
  3. \$1200 - \$2499 3
  4. \$2500 - \$3749 4
  5. \$3750 - \$4999 5
  6. \$5000 - \$9999 6
  7. \$10,000 - \$14,999 7
  8. \$15,000 - \$24,999 8
  9. \$25,000 and over 9

C. I NOW HAVE SEVERAL QUESTIONS ABOUT YOUR COMMUNITY:

1. How willing is this community to adopt new farm practices?
  1. willing 32. 1
  2. about average 2
  3. not very willing 3
2. How does this community regard people who try many new practices?
  1. favourable 33. 1
  2. no feeling 2
  3. not favourable 3
3. How does this community regard people who are slow in adopting new orchard practices?
  1. favourable 34. 1
  2. no feeling 2
  3. not favourable 3

D. (HAND RESPONDENT BLUE CARD):

On side one of this card you will see a number of sources of possible information about improved orchard practices. In answering the next few questions, I want you to give me the number or numbers only of the source or sources which best answer the questions. (enter numbers in right-hand margin).

1. What source or sources have you found to be most useful in finding out about new or improved practices which you can apply profitably in your orchard? 35,36. \_\_\_\_\_  
37,38. \_\_\_\_\_  
39,40. \_\_\_\_\_
2. When you have found an item about a new or improved practice which interests you, to which source or sources do you go for further information on how you can possibly apply it in your orchard? 41,42. \_\_\_\_\_  
43,44. \_\_\_\_\_  
45,46. \_\_\_\_\_
3. When you have received information on a new or improved practice, which source or sources do you use to help you evaluate the information acquired in the light of the existing conditions into which the practice would have to fit? 47,48. \_\_\_\_\_  
49,50. \_\_\_\_\_  
51,52. \_\_\_\_\_
4. After you have weighed the information available, what source or sources do you use in finding information on how to apply the practice? 53,54. \_\_\_\_\_  
55,56. \_\_\_\_\_  
57,58. \_\_\_\_\_
5. When you have found out how to apply the practice, which source or sources do you use in deciding whether or not to adopt the practice? 59,60. \_\_\_\_\_  
61,62. \_\_\_\_\_  
63,64. \_\_\_\_\_
6. I will now read to you some orchard practices recommended in the past few years. I want you to tell me whether you are aware of each of these practices. If so, what progress, if any, have you made towards the adoption of each. Also, what sources of information have you used in working towards the adoption of each of these practices.



<u>Stage of Adoption</u>	<u>Score</u>	<u>Definition</u>
Awareness	1	The first knowledge about a new practice
Interest	2	The active seeking of extensive and detailed information about the idea to determine its possible usefulness and applicability
Evaluation	3	Weighing and sifting the acquired information and evidence in the light of the existing conditions into which the practice would have to fit
Trial	4	The tentative trying out of the practice, accompanied by acquisition of information on how to do it
Adoption	5	The full-scale integration of the practice into the on-going operation

### Recommended Practices and Sources of Information

(In the right-hand margin opposite each practice, enter the appropriate score. Enter the number(s) of the source(s) of information in the right-hand margin also)

1. Dwarfing root stocks: 65. \_\_\_\_\_  
     Sources of information used: 66,67. \_\_\_\_\_  
     68,69. \_\_\_\_\_  
     70,71. \_\_\_\_\_
  
2. Bulk bin handling of fruit during harvest: 72. \_\_\_\_\_  
     (SOURCE DATA CARD NO. 2)  
     Sources of information used: 1,2. \_\_\_\_\_  
     3,4. \_\_\_\_\_  
     5,6. \_\_\_\_\_
  
3. Low volume air-blast sprayers: 7. \_\_\_\_\_  
     Sources of information used: 8,9. \_\_\_\_\_  
     10,11. \_\_\_\_\_  
     12,13. \_\_\_\_\_
  
4. Certified nursery stock: 14. \_\_\_\_\_  
     Sources of information used: 15,16. \_\_\_\_\_  
     17,18. \_\_\_\_\_  
     19,20. \_\_\_\_\_
  
5. Hardy frame works: 21. \_\_\_\_\_  
     Sources of information used: 22,23. \_\_\_\_\_  
     24,25. \_\_\_\_\_  
     26,27. \_\_\_\_\_
  
6. Air-blast sprayers operating through power take-off from the tractors; 28. \_\_\_\_\_  
     Sources of information used: 29,30. \_\_\_\_\_  
     31,32. \_\_\_\_\_  
     33,34. \_\_\_\_\_

E. FINALLY, A FEW QUESTIONS ABOUT THE RECENT  
T.V. CHAUTAUQUA:

1. Do you have a television set in working order?  
1. yes 35. 1  
2. no 2
2. Did you watch this year's T.V. Chautauqua?  
1. yes 36. 1  
2. no 2
3. If no, why not? \_\_\_\_\_
- 

(If "no" answer to question 2, omit questions 4, 5, 6 & 8)

4. On which days did you watch the program?
- |           |        |       |
|-----------|--------|-------|
| Monday    | 1. yes | 37. 1 |
|           | 2. no  | 2     |
| Tuesday   | 1. yes | 38. 1 |
|           | 2. no  | 2     |
| Wednesday | 1. yes | 39. 1 |
|           | 2. no  | 2     |
| Thursday  | 1. yes | 40. 1 |
|           | 2. no  | 2     |
| Friday    | 1. yes | 41. 1 |
|           | 2. no  | 2     |
5. For how long each day:
- |                            |       |
|----------------------------|-------|
| 1. all                     | 42. 1 |
| 2. at least one hour       | 2     |
| 3. at least one-half hour  | 3     |
| 4. less than one-half hour | 4     |
6. Who regularly watched the program with you?
- |                     |       |
|---------------------|-------|
| 1. nobody           | 43. 1 |
| 2. family member    | 2     |
| 3. employee         | 3     |
| 4. other orchardist | 4     |
| 5. partner          | 5     |
| 6. other            | 6.    |

7. I will now name several orchard practices recommended very recently. I want you to tell me if you are aware of these practices and what progress, if any, you have made towards their adoption. Also, what sources of information have you used in working towards adoption of each of these practices?

<u>Stage of Adoption</u>	<u>Score</u>	<u>Definition</u>
Awareness	1	The first knowledge about a new practice
Interest	2	The active seeking of extensive and detailed information about the idea to determine its possible usefulness and application
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Adoption	5	The full-scale integration of the practice into the on-going operation

#### Recommended Practices and Sources of Information

(In the right-hand margin opposite each practice, enter the appropriate score. Enter the number(s) of the source(s) of information in the right-hand margin also).

1. Four-way spraying for the control of San Jose scale: \_\_\_\_\_  
 Sources of information used: 44. \_\_\_\_\_  
 45, 46. \_\_\_\_\_  
 47, 48. \_\_\_\_\_  
 49, 50. \_\_\_\_\_
  
2. Spraying of Urea and Zinc to control powdery mildew on young apple trees: \_\_\_\_\_  
 Sources of information used: 51. \_\_\_\_\_  
 52, 53. \_\_\_\_\_  
 54, 55. \_\_\_\_\_  
 56, 57. \_\_\_\_\_
  
3. Use of Moristan and Morocide to control mites: \_\_\_\_\_  
 Sources of information used: 58. \_\_\_\_\_  
 59, 60. \_\_\_\_\_  
 61, 62. \_\_\_\_\_  
 63, 64. \_\_\_\_\_
  
4. Use of fixed copper sprays for fire blight control: \_\_\_\_\_  
 Sources of information used: 65. \_\_\_\_\_  
 66, 67. \_\_\_\_\_  
 68, 69. \_\_\_\_\_  
 70, 71. \_\_\_\_\_
  
5. Two by three planting pattern for dwarf apple trees: \_\_\_\_\_  
 Sources of information used: 72. \_\_\_\_\_  
 (START DATA CARD NO. 3)  
 1, 2. \_\_\_\_\_  
 3, 4. \_\_\_\_\_  
 5, 6. \_\_\_\_\_

6. Pruning for a central leader on semi-dwarf trees in a high-density planting:

Sources of information used:

7. \_\_\_\_\_  
8,9. \_\_\_\_\_  
10,11. \_\_\_\_\_  
12,13. \_\_\_\_\_

7. Which of the statements on side two of the blue card most accurately describes your personal reaction to the T.V. Chautauqua?

14,15. \_\_\_\_\_

(HAND RESPONDENT YELLOW CARD):

8. Which of these statements are true and which false?  
(circle 1 for true and 2 for false)

Statement 1	16.	1	Statement 16	31.	1	Statement 31	46.	1
		2			2			2
2	17.	1	17	32.	1	32	47.	1
		2			2			2
3	18.	1	18	33.	1	33	48.	1
		2			2			2
4	19.	1	19	34.	1	34	49.	1
		2			2			2
5	20.	1	20	35.	1	35	50.	1
		2			2			2
6	21.	1	21	36.	1	36	51.	1
		2			2			2
7	22.	1	22	37.	1	37	52.	1
		2			2			2
8	23.	1	23	38.	1	38	53.	1
		2			2			2
9	24.	1	24	39.	1	39	54.	1
		2			2			2
10	25.	1	25	40.	1	40	55.	1
		2			2			2
11	26.	1	26	41.	1	41	56.	1
		2			2			2
12	27.	1	27	42.	1	42	57.	1
		2			2			2
13	28.	1	28	43.	1	43	58.	1
		2			2			2
14	29.	1	29	44.	1	44	59.	1
		2			2			2
15	30.	1	30	45.	1	45	60.	1
		2			2			2

10. Is the time of the year that the T.V.Chautauque is held suitable?

1. yes  
2. no

61. 1  
2

11. Is the time of day suitable?

1. yes  
2. no

62. 1  
2

12. Is the length of the program suitable?

1. yes  
2. no

63. 1  
2

13. Any other comments on the T.V. Chautauqua?  
(note any remarks on questions 10, 11 and 12)

\_\_\_\_\_

## SIDE ONE

### SOURCES OF INFORMATION

Number	Source
01	Newspapers
02	Magazines
03	Radio
04	T.V.
05	T.V. Chautauqua
06	Summerland Research Station
07	Chautauqua in district halls
08	Discussion groups with district horticulturist
09	Agricultural meeting
10	Co-operative
11	University of B.C.
12	Vocational Agriculture Courses
13	Adult Education Courses
14	University courses in agriculture
15	B.C. Department of Agriculture publications
16	Federal Department of Agriculture publications
17	B.C. Tree Fruits Ltd.
18	B.C. Fruit Growers Association
19	Salesmen or dealers
20	District horticulturist
21	Employees
22	Vocational agriculture teacher
23	Neighbours
24	Other orchardists
25	Wife
26	Children
27	Other

SIDE TWO

STATEMENTS DESCRIBING REACTION  
TO T.V. CHAUTAUQUA

- 01           It was one of the most rewarding experiences I have every had.
- 02           It was exactly what I wanted.
- 03           I hope we can have another one next year.
- 04           It has provided the kind of information I can use in my orchard.
- 05           It has helped me personally.
- 06           It has solved some problems for me.
- 07           I think it served its purpose.
- 08           It has some merits.
- 09           It was fair.
- 10           It was neither very good nor very poor.
- 11           I was mildly disappointed.
- 12           It was not exactly what I needed.
- 13           It was too general.
- 14           I did not get any new ideas.
- 15           It didn't hold my interest.
- 16           It was much too superficial.
- 17.          I was dissatisfied.
- 18           It was very poorly planned.
- 19           I didn't learn a thing.
- 20           It was a complete waste of time.

## TRUE OR FALSE QUESTIONS

1. Collar rot infection only occurs when soil is above saturation point.
2. No chemical spray kills 100% of insects.
3. When spraying, a grower should use as small a dosage as possible.
4. The air velocity in a concentrate sprayer should be less than 100 miles per hour.
5. Cyprex is an outstanding scab fungicide.
6. San Jose scale is controlled by spraying from two directions only.
7. When spraying from four directions, half as much insecticide must be used as when spraying from two directions.
8. Dormant sprays have no effect against powdery mildew fungus.
9. Peach leaf curl can be controlled by spraying before the buds open.
10. The best time to control European Red mite is at the pink bud stage.
11. Brown Rot does not occur in all stone fruits.
12. Kelthane, when applied in the summer, is effective against European Red mite eggs.
13. Brown Rot occurs every year in the Okanagan Valley normally.
14. Copper sprays will prevent fireblight from spreading in a fruit tree.
15. Fireblight can be controlled in the summer by increasing the moisture level.
16. Morocide spray cannot be applied within 60 days of harvest.
17. The best time to use sprays in the control of mites is after they move to the outer parts of the tree.
18. Healthy, vigorous stone fruit trees encourage attack by borers.
19. The B.C. Tree Fruits quality control program has been poorly accepted by the growers.
20. The pressure test is good for testing the storage life of an apple.
21. Apple picking should be done on the basis of fruit colour only.
22. The chief sign of maturity trouble in peaches is a high cullage rate.
23. The cullage rate on the Red Haven variety of peach has increased in the last two years.

(True or False Questions . . . . . cont'd)

24. New varieties of peaches hold little promise.
25. A normal size peach tends to flatten out under its own weight in the carton.
26. An oversize peach should be picked on the hard side.
27. A great deal of the cullage problem with peaches occurs during harvesting.
28. The planting of some varieties of peaches is recommended.
29. It is recommended that no further plantings of cherries be made.
30. Further plantings of the Red Delicious variety of apples are not recommended.
31. Smaller size trees increase the cost of production.
32. It is important economically to have varieties of nectarines that will ripen in August.
33. Trees are automatically certified after having been colour coded in the certified budwood scheme.
34. The shading effect which a tree has on itself is an unimportant factor in limiting production.
35. When first planting a site a grower should plant twice or three times the number of trees which he will need eventually.
36. Standard size trees have less leaf area per acre than dwarf trees.
37. The pump pressure has a significant effect on the efficiency of spray machines.
38. The best time to start blossom thinning peaches is when the blossoms are first showing colour.
39. The shot-hole borer is encouraged by leaving prunings in the orchard.
40. There is room for more plums on the fresh market.
41. The future for crab-apples looks very promising.
42. The symptoms for boron deficiency and boron toxicity are quite different.
43. Spraying water at night will improve the colour of MacIntosh apples.
44. Dormant spraying carried out four ways for San Jose scale will not control blister mite.
45. Wood shavings are not useful for conserving moisture around young trees.