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AN EXAMINATION  
INTO THE SIGNIFICANCE OF  
A  
FARM INPUT COMPARATIVE EVALUATION SERVICE  
FOR  
NEW ZEALAND

by

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## A C K N O W L E D G E M E N T S

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## T A B L E O F C O N T E N T S

	Page	
CHAPTER 1	INTRODUCTION	1
	1.1 Preface	1
	1.2 Objectives of the Study	2
	1.3 Statement of the Problem	4
	1.4 Procedure	6
CHAPTER 2	REVIEW OF LITERATURE	10
	2.1 Introduction	10
	2.2 Techniques of Consumer Protection	10
	2.3 Industrial Organisation and Agriculture	15
	2.4 Agricultural Cooperatives and Market Power	20
	2.5 The Comparative Testing of Farm Inputs	26
CHAPTER 3	METHOD OF DATA COLLECTION	33
	3.1 Introduction	33
	3.2 Techniques for High-Response Rates in Mail Surveys	34
	3.3 Response Rates in Mail Surveys	37
	3.4 Problems of Non-Response Bias	38
	3.5 Organisation of the Mail Survey	41
	3.6 The Survey Response	43
	3.7 Analysis of Factors Affecting Response Rate	53
	3.8 The Test for Response Bias	57
	3.9 Conclusions	59

CHAPTER 4	THE RESULTS OF THE MAIL SURVEY	60
4.1	Introduction	60
4.2	Farmers' Familiarity with the Consumer Council	61
4.3	The Need for an Input Testing Service	64
4.4	The Items which Farmers Indicated Needed Testing	67
4.4.1	Total of Items Mentioned	68
4.4.2	First Preference	69
4.4.3	Second Preference	71
4.4.4	Third Preference	74
4.4.5	Fourth Preference	74
4.5	The Need for Service Evaluation	75
4.6	The Need for Improved Labelling	78
4.7	Membership in a Trading Group	79
4.8	The Appropriate Organisation to do the Testing	80
4.9	Willingness to Pay for a Testing Service	84
4.10	Amount of Subscription to Testing Service	87
4.10.1	Estimate I	88
4.10.2	Estimate II	88
4.11	Farmers who had read Reports of the New Zealand Agricultural Engineering Institute	91
4.12	The Use of the Reports	92
4.13	Improvements in the Lincoln Scheme and its Reports	93
4.14	Further Information Provided by Farmers	93
4.15	Conclusion	94

CHAPTER 5	THE ORGANISATION OF AGRICULTURAL SUPPLY INDUSTRIES IN NEW ZEALAND	96
5.1	Introduction	96
5.2	Rulings under the Trade Practices Act (1958)	97
5.3	The Effects of Import Licensing on the New Zealand Economy	101
5.4	Import Licensing and Farm Inputs	105
5.5	Import Licensing of Specific Agricultural Inputs	107
5.5.1	Agricultural Tractors	107
5.5.2	Agricultural Machinery	108
5.5.3	Fencing Materials	109
5.5.4	Agricultural Chemicals	110
5.5.5	Milking Machine Parts	110
5.5.6	Summary	111
5.6	The Agricultural Development Conference and Protection of Local Industry	112
5.7	Conclusion	114
CHAPTER 6	SUMMARY AND SUGGESTIONS	117
6.1	Introduction	117
6.2	Possible Organisations to Develop a Farm Input Evaluation Service	118
6.2.1	Government Departments	119
6.2.2	The New Zealand Agricultural Engineering Institute	119
6.2.3	Consumer Council	120
6.2.4	Federated Farmers	121
6.2.5	Agricultural Cooperative Trading Companies	122

6.3	The Most Appropriate Organisation to do Farm Input Testing	123
6.4	Financing a Farm Input Evaluation Service	124
6.5	The Distribution of Testing Service Information	126
6.6	Recommendations on Veterinary Supplies	126
6.7	Recommendations on Fencing Supplies	127
6.8	Recommendations on Agricultural Machinery	128
6.9	Recommendations on General Farm Supplies	130
6.10	Summary	130
6.11	Conclusion	133

#### REFERENCES

#### APPENDICES

- A. Value of Industrial Inputs Purchased by  
Farmers
- B. Copies of the Introductory Letters and  
the Questionnaire
- C. Estimate of Number of Farmers in New  
Zealand
- D. Additional Information from the Questionnaire
- E. Further Information Provided by Respondents

L I S T O F T A B L E S

Table		Page
3. 1	Number of Respondents to the Mail Survey by Group	43
3. 2	Knowledge of Government Valuation, Number of Respondents and Non-Respondents	45
3. 3	Frequency Distribution of Farm Size, Number of Respondents and Non-Respondents	45
3. 4	Farm Organisation, Number of Respondents and Non-Respondents	46
3. 5	Average Time in Decision-Making Role in Years, Respondents and Non-Respondents	46
3. 6	Average Butterfat, Respondents and Non-Respondents	47
3. 7	Herd Size, Number of Respondents and Non-Respondents	48
3. 8	Present Butterfat Production, Number of Respondents and Non-Respondents	48
3. 9	Age of Farmer, Number of Respondents and Non-Respondents	49
3.10	Health Rating, Number of Respondents and Non-Respondents	49
3.11	Ownership of Television Sets, Number of Respondents and Non-Respondents	50
3.12	Farm Radio Sessions, Number of Respondents and Non-Respondents	50
3.13	Advisory Officer Visits in Last Two Years, Number of Respondents and Non-Respondents	51
3.14	Need for an Advisory Officer, Number of Respondents and Non-Respondents	51

3.15	Differences Between Respondents and Non- Respondents in Relation to Willingness to Borrow and Attitude towards Stocking Rate	52
3.16	Differences between Types of Envelope Returned, Group III	54
3.17	Differences between Types of Envelope Returned, Groups I, II and IV	54
3.18	Differences between Types of Envelope Returned, Entire Survey	55
3.19	Differences between Stamped and Franked Envelopes	55
3.20	Differences in Signature for the Introductory Letter	56
3.21	Farmers Who Wanted a Report on the Survey in Relation to Those Who Felt an Input Evaluation Service was needed	58
3.22	Farmers Who Wanted a Report on the Survey in Relation to Those Who Felt an Input Evaluation Service was Needed (including only "Yes" and "No")	58
4. 1	Familiarity with the Consumer Council in Relation to "Consumer" Subscribers	61
4. 2	Familiarity with the Consumer Council by Enterprise Type	63
4. 3	"Consumer" Subscribers by Enterprise Type	64
4. 4	Need for a Testing Service by Enterprise Type	65
4. 5	Need for a Testing Service in Relation to Familiarity With the Consumer Council	65
4.6	Need for a Testing Service in Relation to "Consumer" Subscribers	66

4.7	Farm Machinery Testing, Preference 1	70
4.8	Veterinary Supply Testing, Preference 1	70
4.9	General Farm Requisite Testing, Preference 1	71
4.10	Farm Machinery Testing, Preference 2	72
4.11	Veterinary Supply Testing, Preference 2	72
4.12	Drench Testing, Preference 2	73
4.13	Stock Lick Testing, Preference 2	73
4.14	Fencing Tests, Preference 2	73
4.15	Fencing Tests, Preference 3	74
4.16	Fencing Tests, Preference 4	75
4.17	Need for Service Evaluation in Relation to Familiarity with the Consumer Council	77
4.18	Need for Service Evaluation in Relation to Need for a Testing Service	77
4.19	Need for Service Evaluation by Enterprise Type	78
4.20	Adequacy of Labelling in Relation to Familiarity With the Consumer Council	79
4.21	Membership in Trading Groups by Enterprise Type	80
4.22	The Appropriate Organisation to do Testing in Relation to Familiarity with the Consumer Council	81
4.23	The Appropriate Organisation to do Testing in Relation to Membership in Trading Groups	82
4.24	The Appropriate Organisation to do Testing by Enterprise Type	83
4.25	Willingness to Pay for Testing in Relation to Familiarity With the Consumer Council	84

4.26	Willingness to Pay for Testing in Relation to "Consumer" Subscribers	85
4.27	Willingness to Pay for Testing in Relation to the Need for a Testing Service	86
4.28	Willingness to Pay for Testing in Relation to Membership in Trading Group	86
4.29	Willingness to Pay by Enterprise Type	87
4.30	Amount Willing to Pay in Relation to "Consumer" Subscribers	89
4.31	Amount Willing to Pay in Relation to Membership in Trading Group	90
4.32	Amount Willing to Pay by Enterprise Type	91
4.33	Usefulness of Agricultural Engineering Reports in Relation to those who had read them	92
4.34	The Provision of Further Information in Relation to Enterprise Type	94

## CHAPTER 1

### I N T R O D U C T I O N

#### 1.1 Preface

The problem of choosing the most productive input per \$ to combine with other farm inputs is becoming increasingly magnified with the greater dependence of primary industry on secondary industry for its inputs. Tweeten <sup>1</sup> suggests that in the United States, while the aggregate farm input level has remained nearly constant since the late 1920's, use of purchased inputs has increased approximately 70% since 1929. Breimyer <sup>2</sup> quotes Loomis and Barton, who estimate that as recently as 1940 about 66% of the total inputs into agriculture were land and farm-resident labour; however in 1961 only 37% of the inputs belonged to these classes, showing that non-farm inputs have doubled their proportionate share.

It is suggested that the farmer does not have adequate information at the present time to help him in his decision making as to the most productive inputs to purchase, particularly when the goods produced by the non-farm sector of the economy consist of a few goods which are slightly differentiated in design. The presence of a large number of slightly differentiated goods is associated with specialization and scale in secondary industry.

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1 L.G. Tweeten, "Determining Factor Shares : Discussion", Chap.9 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 217.

2 H.F. Breimyer, "The Changing Institutional Organization", Chap.7 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 157.

## 1.2 Objectives of the Study

The Molony Report <sup>3</sup> says, "It was represented to us that the farmer, the small shopkeeper, the boarding-house proprietor, and others in like case, purchase supplies and equipment for business use on so limited a scale, and with so limited a business experience, as to make their problems closely comparable with those of the domestic consumer: and, therefore, that our study should embrace the special difficulties which such groups were said to experience. With that view, we did not agree. The problems experienced by the small business may differ from those encountered by the larger concerns, but only in degree; they all form part of the pattern of commercial relationship arising between those who have elected to buy and sell as a matter of business. As such, they must clearly be set apart from the problems of the purchaser who shops purely in a private capacity. Hence our restriction to goods acquired 'for private use or consumption' ".

Given the trend towards more capital-intensive farming methods, the assumption that a farmer has a complete awareness of the effectiveness of various inputs is unfounded.

The increasing proportion of non-farm inputs used in the farm production process, together with the increasing sophistication of these manufactured inputs, suggests that extension is required in the field of input selection.

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3 Great Britain Board of Trade, Final Report of the Committee on Consumer Protection (London: H.M.S.O. 1962), 1.

It is a feature of agriculture that research should be provided by Government because of the atomistic structure of the industry where no one farmer can support a research project. In addition, as one aspect of providing for the welfare of the nation, Government has undertaken the responsibility of providing research funds so that the cost of agricultural production may continue to decrease in real terms.

To enable research results to be applied on farms it is necessary for the Government to develop an extension service as an individual farm is too small to employ an agricultural adviser. Government has also accepted it as a responsibility in most countries to provide extension services to enable those who stay in agriculture to attain a reasonable standard of living, and in some cases to move redundant labour out of agriculture as rapidly as possible.

In recent years farmers have cooperated on a local basis to provide their own extension services through the Farm Improvement Club Movement. This Movement has also been a cooperative supply group for certain inputs for farmer members.

A further stage in this Farm Improvement Club Movement would be for farmers to cooperate to enable the comparative testing of certain farm inputs to be carried out. Evidence suggests that a sum of \$100,000 - \$150,000 p.a. could be available to enable comparative testing of farm inputs to be undertaken.

The objectives of this study are: -

- I. To ascertain the adequacy and reliability of commercial information available to the farmer with the present institutional arrangements and the existing legislation.

- II. To classify the type of items on which farmers feel they have insufficient information.
- III. To suggest an institutional framework to either carry out comparative tests or to make information more readily available to the farmer.
- IV. To check the range and price of inputs available to farmers in New Zealand compared with those available to farmers in other developed countries.

### 1.3 Statement of the Problem

The New Zealand Industrial Production Statistics <sup>4</sup> indicate that the total value of the goods purchased from secondary industry by farmers is in the vicinity of \$28m. The Inter-Industry Study of the New Zealand Economy 1959-60 <sup>5</sup> produces an estimate of \$21m. Details as to how the estimate was derived are shown in Appendix A.

In addition to inputs manufactured by New Zealand industry, \$32m. worth of farm inputs were imported into New Zealand in 1959-60 <sup>6</sup>.

This means the total value of the inputs moving from secondary industry into primary industry is approximately \$60m. annually.

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4 N.Z. Dept. of Statistics, N.Z. Industrial Production 1965-66 (Wellington: Government Printer), 149 - 232.

5 N.Z. Dept. of Statistics, Inter-Industry Study of the N.Z. Economy 1959-60 (Wellington: Government Printer), Part 1, Table 1.1.

6 Ibid.

The figure of \$28m. obtained above represents 1.2% of the value of factory production in New Zealand, and the figure of \$60m. represents 7.8% of the gross farming income (excluding Horticulture, Poultry and Bees), for the year 1964-65. \$60m. represents half the cost of the first three stages of the new iron and steel industry, N.Z. Steel Ltd.

As a percentage \$60m. is not a large figure. However it must be remembered that labour is an important complementary input with these manufactured inputs. Combining labour with a low quality input can have both a high apparent cost and a high opportunity cost, if the input does not do its particular job adequately.

An example of the cost of labour associated with the use of manufactured inputs is that of fencing. Pearse and Humphries<sup>7</sup> estimate that the 40m. chains of fencing in New Zealand would have a replacement value of about \$400m. During 1963-64 7.25m. fence posts were used on farm land, representing in terms of fencing (at 3.5 posts and \$10 per chain), an annual expenditure of approximately \$20m. A \$14m. wage bill (2m. chains of fencing at \$7 per chain) could mean a substantial national loss if the labour was combined with inefficient inputs. \$34m. represents a large quantity of resources to be invested nationally, and even a quite small reduction in cost and/or efficiency of use of fencing materials could mean a substantial national saving.

At the present time most farm inputs come under some form of test at the factory level on a quality control basis, or are required by legislation to reach some minimum level of performance. The Standards Association has also developed Standards for some farm inputs to protect the farmer against the purchase of inferior quality goods.

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<sup>7</sup> H.C.H. Pearse and K.R. Humphries, "Reducing Fencing Costs on Hill Country", Massey Sheepfarming Annual 1966 (Palmerston North, N.Z.) 225.

Tests are also carried out by Government Departments, but trade-names are not published. These tests, carried out by Government Departments in the course of their research activities, only inform the farmer that there are certain faulty goods coming on to, or available on the market, but there is no indication of the particular brands involved.

It is normal policy of Government Departments throughout the world to maintain a position of impartiality in business and commerce by not promoting any particular brand. Since this impartiality is a feature of Government policy it would seem that the test results, stored up in Government Departments would never be available to the public unless pressure were put on the Government to release this information for use by a comparative testing organisation.

#### 1.4 Procedure

The following is the procedure used:

- A. A review of literature was undertaken to -
  - I. Review the techniques used in consumer protection at the present time.
  - II. Compare the differences between industrial and agricultural organisation.
  - III. Determine the value of cooperatives in agriculture, with particular reference to supply cooperatives: the role of supply cooperatives in selective buying, and the recent development of the cooperative trading group in New Zealand.

- IV. Review overseas attempts to set up a farm input testing service.
- V. Review the attempts in New Zealand to implement a testing service and the present situation in regard to testing.

B. A survey was undertaken -

The survey was designed to obtain greater insight into the need for an input testing unit by farmers. The review of literature showed a genuine interest in input testing amongst farmers, but the documentation of the items which should be tested, and the organisational features of a testing service were unavailable. The survey used to obtain greater insight into the need for farm input testing took the form of a mail survey, using a two-page, pre-tested questionnaire.

The farmers included in the survey consisted of 952 farmers who had already been contacted by telephone in the course of a telephone survey. A further 176 farmers, who belonged to the Manawatu Farm Improvement Club were also contacted.

The data was processed by a computer.

C. Survey results were tested for significance -

The purpose of a significance test is to provide a means of deciding whether differences in observed data are due to chance variations resulting from sampling.

By setting up a null hypothesis and calculating the probability ( $p$ ) with which the observed event could have occurred due to sampling, a reasonably objective basis for deciding on the acceptance or rejection of differences is available.

The levels of significance chosen for this study, together with a description of these levels, are shown below: -

$p < 5\%$  : the difference is significant.

$10\% > p > 5\%$  : the difference may be significant.

$p > 10\%$  : the difference is non-significant (N.S.).

Both t-tests and chi-square tests were used to analyse results. The t-test tested whether certain sample means for respondents and non-respondents could have come from the same population<sup>8</sup>, while the chi-square test was applied to examine: -

- (i) A hypothesis specifying the frequency with which observations fell into certain classifications<sup>9</sup>.
- (ii) Contingency tables for the presence or absence of an association between two criteria of classification<sup>10</sup>.

8 A.L. Edwards, Statistical Methods for the Behavioural Sciences (New York : Rinehart, 1960), 252 - 255.

9 G.W. Snedecor, Statistical Methods (Ames : Iowa State University Press, 1956), 24.

10 Ibid., 225-227.

In tables where it was felt the criteria were obviously associated, no chi-square test was carried out.

## CHAPTER 2

### REVIEW OF LITERATURE

#### 2.1 Introduction

The Common Law maxim "caveat emptor" has become progressively more untenable in our mass consumption economy. The increasing range of goods available and their technical sophistication, together with scientific sales techniques and persuasive advertising, have given rise to movements concerned with consumer protection and education.

The "Consumer Movement" has three broad objectives: -

- I. The passage of legislation to protect consumers against the consequences of their ignorance and indifference.
- II. The supplying of information to consumers so they will buy more intelligently.
- III. The education of consumers in the techniques of intelligent buying.

#### 2.2 Techniques of Consumer Protection

The nineteenth-century doctrine of "caveat emptor" has been modified since it was enunciated, firstly out of consideration for health, but latterly to enable the consumer to be informed of the technical details of the product he was buying.

Legislation in New Zealand to protect the consumer consists of such Acts as the Animal Remedies Act (1967), the Medical Advertisements Act (1942), the Stock Foods Act (1946), the Food and Drugs Act (1947), the Merchandise Marks Act (1954) and the Agricultural Chemicals Act (1959).

Associated with legislation, Standards of minimum quality or performance have been developed. Standards, being only a minimum requirement for goods, are a means of protecting the consumer against being sold grossly inferior or harmful goods.

In direct contrast to Standards, grade-labelling is an attempt to communicate in symbols the relative quality of a product. The utility of grade-labelling is limited to simple products with few attributes, because use of a grade requires agreement on the best combination of product characteristics. However it must be remembered that goods with few attributes are those which consumers are most capable of evaluating by themselves. The rapid changes occurring in product and package innovation has meant that if grade-labelling is chosen as a method of consumer protection, there is an enormous grade-labelling task to be undertaken.

Grade-labelling may also have a marked effect on firm organisation. With a system of grading it would seem product differentiation would be reduced, thus promoting price competition. If price competition occurred there would be smaller marketing margins and less research-and-development revenues.

The Standards Institute was founded in New Zealand in 1932. In 1941 statutory provision was included in the Standards Act for the

registration of Standard Marks, as certification trademarks. These trademarks were to be used under license to distinguish goods which conform to Standards Specifications from those which do not. The mark is available to traders under a licence granted by the Minister of Industries and Commerce. The purpose of the mark is to afford effective protection to the public against the purchase of inferior commodities which simulate quality lines, and to protect traders against false and unfair competition. It was hoped the mark would supplement other guides to selection, making labelling more informative, and trademarks more effective means of maintaining the prestige of goods and of upholding the reputation of the business interests concerned.

Unfortunately the development of Standards has not had a marked effect on quality; otherwise there would not be such an interest in the "Consumer Movement". The insignificant effect of Standards on quality, coupled with a wider range of, and more complex goods, has been a major force prompting the development of consumer organisations in a number of countries. These consumer organisations have been the leaders in promoting comparative testing. Comparative testing provides the consumer with an independent source of market information, to supplement the contents of advertisements, the advice of recognised dealers and the experience of other people. These three sources are alternative and supplementary methods of obtaining market facts, but the information obtained from any one source may be limited, biased and misleading.

While having their greatest impact on only those consumers who are members, or their friends, consumer organisations may be said to have benefited all consumers because of their indirect influence on manufacturers. The risk of an adverse report has caused many manufacturers to take a much greater interest in the quality of the product they are producing.

It must be remembered that there are a number of inherent limitations to testing and rating goods: -

- I. Only branded items may be rated, as purchasers have no way of identifying rated, but unbranded items.
- II. General utility standards for many goods cannot be established, since different users value the qualities and attributes of any product differently.
- III. The durability of many durable goods may be difficult to establish in short-term tests.

In spite of the benefits which are available from a consumer organisation some of these organisations are not expanding in size.

Fulop <sup>1</sup> says consumer organisations are not expanding due to the fact that -

- I. Only at certain periods in a life-time does a consumer make large purchases of equipment and only then find membership justifiable.

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<sup>1</sup> C. Fulop, Competition for Consumers (Institute of Economic Affairs, London : Deutsch, 1964), 225.

II. Only those people with the desire and ability to read comparative reports will subscribe to a consumer organisation.

III. Many people find too much knowledge a dangerous thing and the information sometimes more technical and detailed than they can use.

The long term aspect of consumer protection involves consumer education. The aim of consumer education is to enable consumers to identify their needs, to make a reasoned assessment of the alternative goods available, or the alternative means available to meet their needs. With the available information consumers can make a logical selection in terms of their own satisfaction rather than the convenience of manufacturers or retailers.

Associated with consumer education is "consumer enlightenment" whereby objective information is supplied about the available goods and services. "Consumer enlightenment" is directed toward the whole community using all forms of publicity and communication, including the publication of informative leaflets on goods, services and legislation as they affect the consumer. The process of enlightened information differs from more direct consumer education in that information may be received passively, while direct education involves active consumer response and participation <sup>2</sup>.

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2 Great Britain Board of Trade, Final Report of the Committee on Consumer Protection (London: H.M.S.O., 1962), 6.

### 2.3 Industrial Organisation and Agriculture

Farmers are unaccustomed to the organisation and selling techniques of secondary industry because of the different structural characteristics of firms in this industry compared to firms in farming.

Lanzillotti <sup>3</sup> suggests that because of the structural features of agriculture, i.e. size - distribution of farms, product homogeneity, the level of managerial skill, exit barriers, demand - supply elasticities etc., there is a situation conducive to an inferior bargaining position for farmers. In addition farmers are not able to escalate cost increases forward in the administrative fashion of manufacturing industry. Agricultural income behaves quite differently from that of manufacturers over the course of business fluctuations. Over short-run periods it is to be expected this imbalance in market power will aggravate the farmers' worsening terms-of-trade vis-a-vis suppliers, thus resulting in lower real farm income.

In New Zealand fluctuating incomes can lead to wage increases which are reflected in cost increases to the entire economy. Periods of high prices for the farming sector of the economy lead to wage increases, but periods of low prices do not produce wage declines. The long-run result may be a steadily increasing cost structure with falling export prices.

Sartorius <sup>4</sup> says the important aspect in considering the organisation of agricultural supply industries is whether there is workable competition to the extent that these industries set approximately the lowest possible cost for the goods they produce and distribute.

<sup>3</sup> R.F. Lanzillotti, "The Superior Market Power of Food Processing and Agricultural Supply Firms - its Relation to the Farm Problem", J.Fm.Econ., 42: 1243 - 1244, (1960).

<sup>4</sup> L.C. Sartorius, "Market Structures and Market Power - Discussion", Chap.5 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 117 - 120.

Sartorius contends that product competition is an effective form of competition in non-standard products. He suggests that the presence of concentration and of administered prices does not mean there is no competition in farm supply industries.

Slater <sup>5</sup> suggests that the economies of scale and the level of innovation provided by the present oligopolistic market structure contributes more to farmers' income than the resource redistribution which would occur in a purely competitive market structure.

Bain <sup>6</sup> says that, to look at the extent of oligopoly present in a market, an analysis of the ease of entry into concentrated markets would seem relevant. The extent of oligopoly can be evaluated roughly by the advantage of established sellers in an industry over potential entrant sellers, these advantages being reflected by the extent to which established sellers can persistently raise their prices above a competitive level without attracting new firms into the industry.

New Zealand as an entire market cannot be entered easily by some farm inputs. On the criterion of Bain's discussed above it would seem that the degree of oligopoly (or monopoly) for certain farm inputs in New Zealand is absolute, because of the system of import licensing practised. It is possible for some manufacturers to raise their prices above a competitive level persistently and not attract new firms into

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5 G.R. Slater, "Discussion: The Relative Market Power of Farm Machinery Manufacturers", J. Fm. Econ., 42: 1254, (1960).

6 J.S. Bain, Barriers to New Competition (Cambridge, Mass: Harvard University Press, 1965), 2 - 4.

the industry, simply because no new licences are available to allow a new industry to operate, and where the market may be too small to support more than one manufacturer.

Advertising has been associated with the development of oligopolistic industry, a feature of which is product competition, rather than price competition. Millar <sup>7</sup> says advertising should exist to fulfil one or both of the following two functions: -

- I. Increase sales to the point where not only advertising costs are retrieved, but where prices can be cut and this cut passed on to the consumer.
- II. Provide consumers with the kind of information needed if they are to make a discriminating choice.

If advertising does not fulfil either of these functions then the consumer will be paying more for goods than he need pay and be no wiser about the respective merits of competing brands.

There is a real need for information on the price and more importantly the quality of goods available for purchase. This is particularly so in the case of complex and durable goods, as are a number of farm inputs. Many farm inputs are made by heavy industry with its relatively long history of association with technical information and services, but the information needs to be interpreted for the benefit of the farmer.

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7 R. Millar, The Affluent Sheep (London: Longmans, 1963), 59.

Sartorius<sup>8</sup> agrees that there are many examples of advertising and promotion that could be considered wasteful, but it is necessary to consider the alternatives to no advertising. He cites the case of the tractor industry where many different options are offered on tractors. Sartorius contends that if the tractor industry offers options it must also describe and promote the sale of these options, i.e. the industry must advertise.

Rhodes<sup>9</sup> suggests that the nonatomistic nature of the agricultural chemicals and farm machinery industries has promoted such non-price forms of competition as improved product design and aggressive merchandising. The economies of scale available to these industries has enabled them to develop new products through their investment in research laboratories, and to sell the products because of their marketing ability. Farmers have been encouraged to adopt new technology in agriculture because of the ability of these firms to develop and sell their ideas. The need to maintain a share of the market has meant that these large firms have taken care, before placing their product on the market, to see that the product is equivalent in quality to similar products. The existence of such units as the Merck, Sharp and Dohme demonstration farm testifies to the consciousness firms have developed in keeping their standards high.

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8 Sartorius, op. cit., 119.

9 V.J. Rhodes, "Inter-Industry Flows and Farm Income - Discussion", Chap. 4 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 75 - 76.

With increased product variation and greater differentiation of inputs it is difficult to evaluate the price-quality alternatives available on the market. Fletcher <sup>10</sup> quotes Markham in his discussion on the quantification of the cost of irrational buying through deficient information in the case of fertilizer. "The social costs of such irrational buying can be measured in terms of the difference between the farmers' total outlays on mixed fertilizer and what they would have been had the farmers bought the same nutrients in the cheapest grades available". Markham estimated this amount to be \$60m. for 1950 or 10% of United States farmers' expenditures for fertilizer.

Wood <sup>11</sup> says the experience of the Consumer Council in its testing work in New Zealand shows quite conclusively that far from dealing with the "known and the proved" the New Zealand consumer has a real need for impartial guidance, particularly in the purchase of complex products. Advertising in New Zealand, as well as overseas, simply does not provide enough proven product information to meet the needs of the discriminating purchaser.

It has been suggested that a limited market, coupled with import licensing, has generated higher operating costs and monopoly prices, leading to excessive charges for certain inputs, compared to their cost if imported. In addition it is possible that import licensing retards the adoption of the most highly productive inputs available at our present stage of technology, due to non-availability. There would appear to be protection present in some sectors of the farm machinery industry <sup>12</sup>.

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10 L.B. Fletcher, "Market Structures and Market Power", Chap.5 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 109.

11 G.E. Wood, The Wordsmiths (Wellington: N.Z. Consumer Council, 1964), 93.

12 Personal communication with farm machinery distributors.

## 2.4 Agricultural Cooperatives and Market Power

Agricultural cooperatives can be considered business organisations set up and democratically controlled by their members to perform at cost, such functions as marketing, purchasing etc. for themselves. Kohls<sup>13</sup> regards a cooperative as a distinct form of business enterprise with some features and functions common to both corporations and partnerships, serving those who are at the same time both owners and users of its services.

There are three distinguishing features which help to differentiate a cooperative from other forms of business enterprise: for an enterprise to qualify as a cooperative these features need to be incorporated into the organisational and operating pattern:.-

- I. The ownership and control of the enterprise must be by those who utilize its services. This means the primary objective of the cooperative enterprise is to do the job assigned to it at a minimum cost, with maximum satisfaction for its owner patrons.
- II. The business operations must be conducted so as to approach a cost basis and any returns above cost be returned to patrons on an equitable basis. This phenomenon is commonly known as patronage refund.
- III. The return on the owner's invested capital must be limited. In the cooperative the patron-owner invests his money primarily so the organisation can provide the desired services for him.

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13 R.L. Kohls, Marketing of Agricultural Products (New York: Macmillan, 1955), 324.

Kohls <sup>14</sup> suggests that for a cooperative to be a long-run success it must accomplish at least one of the following objectives: -

- I. Increase the returns from the sale of products of its members and/or reduce the cost of inputs to its members.
- II. Reduce the price or improve the quality of the purchases of its members.
- III. Render new or improved service or give more equitable treatment to its members.

Kohls considers a cooperative should be the "pace-setter" for the industry with which it is associated, maintaining there is no real reason for establishing an additional organisation if the present organisations are functioning adequately.

Lazarlene <sup>15</sup> says the successful cooperatives have been those which served as pace-makers in their particular industry, either through internal efficiencies of plant operation, or by consolidation and reduction in the number of links in a particular market channel. An important role of the cooperative was that of being a market research unit, as well as an operating unit. Since the beginnings of the cooperative movement were under the impetus of a number of potential patron-members who wanted a service or a product at a price they were not able to obtain from existing firms, cooperatives frequently were able to reflect the needs and wants of individual members effectively.

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14 Ibid., 333.

15 H. Lazarlene, "Cooperatives in Agricultural Marketing", Chap.11 in Agricultural Market Analysis (East Lansing: Michigan State University Business Studies 1964), 211 - 212.

In the course of their activities desirable changes were frequently brought to their attention by patron-members. This emphasis on learning the wants and needs of customers is receiving much attention in modern marketing firms at the present time.

Knutson<sup>16</sup> suggests that the cooperative acting in an imperfectly competitive structural situation can bring about price, output and efficiency dimensions comparable to those of pure competition.

The pace-setting activities of the cooperative will tend to benefit all members in a particular market, not only the member-patrons. It is imperative that members be continually informed of the short-run and long-run objectives of the organisation, and the achievement of these objectives.

Difficulties in growth may be experienced if equity capital is supplied in proportion to the patronage of individual patron-members. On this basis it may be a good idea to obtain significant amounts of capital from capital sources other than patron-members, as the N.Z. Dairy Board is currently doing.

At its inception the cooperative has a marked advantage in the adoption of new technology, but at a later stage in the development of the cooperative it is difficult to change members' attitudes, to allow important developments to occur, e.g. cooperative merger.

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16 R.D. Knutson, "Cooperatives and the Competitive Ideal", J. Fm.Econ., 48: 120, (Aug. 1966).

Cooperatives may also perform poorly if the democratic process of "one man, one vote" is continued. Lazarlene<sup>17</sup> suggests a strong leader, acting as an executive officer and maintaining consistent management, appears to be the most successful.

It would seem that because of the unique relationship between patrons and owners a cooperative is in a better position to risk using innovations and new developments in comparison with the situation of an ordinary corporate business where outside stockholders must be satisfied. Butz<sup>18</sup> says that over the years cooperatives were first to use many of the innovations and new developments in the marketing of farm products and the distribution of farm supplies. This ability to be a pace-setter in acting on new developments or innovations provides an excellent background for the development of a farm input testing service by a farm cooperative in New Zealand.

Historically the Cooperative Societies were first in the field of the "Consumer Movement" in the United Kingdom. Although the "Consumer Movement" has become a separate recognisable body of opinion, the Cooperative Societies have continued their traditional interest in consumer affairs. Cooperatives are in an ideal position to take part in the "Consumer Movement", since the cooperative is a firm run by members for their own benefit, and an important way that a supply cooperative can affect the return to its members is by offering them a high quality input.

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17 Lazarlene, op.cit., 214.

18 D. Butz, "Cooperative Marketing and Purchasing", Chap.10 in Farmers in the Market Economy (Ames: Iowa State University Press, 1964), 227.

Mather <sup>19</sup> says that supply cooperatives in the United States with efficient operations have improved the buying power of farmers, reduced the costs of their production supplies, and increased their net farm incomes. Mather maintains that some cooperatives have had a salutary effect on business or trade practices in their area. High quality supplies, selected to give value-in-use benefits, have been provided for farmer members. In the provision of high quality supplies at reasonable costs many cooperatives have carried out their usual pace-setting activities.

In the procurement of general farm supplies and equipment many cooperatives in the United States have emphasized selective buying. Using laboratory tests, farmer advisory panels, market research surveys and agricultural engineering departments of State experimental stations, cooperatives have determined the specifications of supplies best suited to farmer needs.

Testing and development of agricultural inputs has been carried out by regional cooperatives in the United States since 1945. At a later date this laboratory was taken over by United Cooperatives (which is controlled by twenty-four regional cooperatives). The two main functions of the laboratory are: -

- I. To make comparative tests of inputs used in agricultural production, including field machinery.
- II. The development of new inputs and equipment as required by a changing agriculture.

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19 J.W. Mather, Supply Cooperatives (Farmer Cooperative Service, U.S. Dept. of Agriculture, Washington: Bulletin Reprint 2), 43 - 44.

Purchased items are checked and comparisons made of items which are purchased with similar items offered by competition. The laboratory is operated entirely for the benefit of United members and all reports and results are considered confidential. The only recommendations made as to "best buys" are those given to their buyers <sup>20</sup>.

The testing laboratory run by National Cooperatives is an extremely important source of product knowledge and from the results obtained in the laboratory it is possible to evaluate the product in terms of its selling price, and so pick the "best buy". The 'co-op' label itself represents a "best buy".

The laboratory is stated to be of great assistance in saving money for members as well as enabling them to obtain a better product for their money. The cooperative is no longer dependent on the salesmanship of any particular supplier who might or might not be truthful in his claims. With the product facts and the firm's offered price it is possible to make a choice between several competing products. <sup>21</sup>

The supply cooperative movement in New Zealand has just begun to make its presence felt. At present there are fifteen cooperative Trading Societies in New Zealand incorporated with limited liability under the Industrial and Provident Societies Act (1908).

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20 Personal communication with United Cooperatives Inc., Alliance, Ohio, U.S.A.

21 Personal communication with National Cooperatives Inc., Albert Lea, Minnesota, U.S.A.

The chairman of the Rotorua cooperative trading group says "farmers in N.Z. have over \$200m. of purchasing power.... All group trading means is that this \$200m. will be channelled into the pockets of those prepared to give value and service"<sup>22</sup>. In Rotorua contracts have been negotiated with various business firms, who have offered the trading group quite worthwhile discounts in return for cash trading. A wide range of articles have been included in these contracts, resulting in an overall reduction of about 5% in members' costs<sup>23</sup>.

## 2.5 The Comparative Testing of Farm Inputs

### Overseas Experience -

A review of literature failed to reveal a single organisation overseas concerned specifically with the testing of farm inputs. However, several of the more common consumer goods are also used by farmers, e.g. tyres, batteries.

The National Institute of Agricultural Engineering in the United Kingdom has made an attempt to produce a "Report for Users" scheme. Originally, the Institute was an organisation set up to assess the performance of tractors and field machinery on an unbiased basis, both in the laboratory and in the field, so that steel could be allocated efficiently, and without waste, during the last War. After the War the work was carried on to provide the manufacturers with a testing service, for which they paid a small fee. The bulk of the cost was borne by the Treasury through the Agricultural Research Council. Summaries of some of these tests were published, so the information would be available to interested parties, including farmers.

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22 Straight Furrow, 22 : 1, (Feb. 7, 1962).

23 \_\_\_\_\_, 23 : 5, (Nov. 21, 1962).

At a later stage pressure came from the farmers' organisations to introduce tests specifically designed to satisfy the needs of the user. There was a tendency to work more on a comparative basis. Testing regulations were also changed; previously the manufacturers had the right of veto on publication, but under the new regulations the test results obtained were of necessity published, unless that machine were withdrawn from the market.

With the "Report for Users" development, a subscription scheme of three guineas per year was launched, in the hope that farmers would provide a substantial amount of the funds required to run the testing service, estimated to cost in the region of £150,000 p.a. Fees were still charged to manufacturers; even although these were increased they still covered only a small proportion of the cost of the tests.

The number of subscriptions received from farmers did not rise above £5,000. Manufacturers did not like comparative tests and entries for tests dropped considerably. At the present time the whole of the testing service is being reconsidered. There is a possibility that the funds may be supplied through the Ministry of Agriculture instead of the Agricultural Research Council <sup>24</sup>.

The Australian Consumer Association, in its magazine "Choice", reported on a comparative test done on electric fences, specifying a "best buy" from amongst both the mains units and the battery units <sup>25</sup>.

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24 Personal communication with the National Institute of Agricultural Engineering, Bedford, England.

25 Australian Consumers' Association, "Electric Fences", Choice, 6 : 149 - 155, (July 1965).

The performance of the electric fence was assessed by seeing how effective the fence was in preventing livestock from breaking through, how long a fence it would charge, and how it stood up to adverse conditions, e.g. wet weather, long grass. Particular attention was paid to the regulation of the output voltage.

The test criteria used in the comparative tests involved the following points: -

- I. Mechanical and electrical construction.
- II. Electrical output, particularly the regulation of output voltage.
- III. Power consumption.
- IV. Durability in use.
- V. The effect of weather on the fence.
- VI. Convenience.

The different makes of electric fence unit were discussed in relation to the following features:

- I. Price (without battery).
- II. Weight (without batteries).
- III. Overall size (length x breadth x depth).
- IV. Electrical performance (good : fair : very good).
- V. Test or indicator light (yes : no).
- VI. Construction case mechanism (plastic : sheet steel : balance wheel).
- VII. Battery compartment (yes : no : wet, dry or mains unit).
- VIII. Battery life (months).

New Zealand Experience -

In New Zealand the Standards Institute has made Standards available for some farm inputs. It would appear that Standards have not really been adequate in safeguarding the farmer and since 1948 there have been efforts to set up an agricultural engineering testing and research organisation. The formation of this organisation was not realised until the New Zealand Agricultural Engineering Institute was set up in 1962.

Dissatisfaction with the "status quo" has been reflected from time to time in remits from Provinces of Federated Farmers. There has been some dissatisfaction with the Stock Remedies Act (1934) [now the Animal Remedies Act (1967)]. Allegations have been made that some remedies, especially dips, were being placed on the market before being fully tested <sup>26</sup>. There has also been discussion on the unnecessary advisory service provided by the manufacturers and distributors of hormone weedkillers <sup>27</sup>.

Under the Trade Practices Act (1958) an inquiry has been conducted into certain alleged agreements or arrangements in relation to the sale of weedkiller preparations between members of the Weedkiller Manufacturers' Section within the New Zealand Agricultural Chemical Manufacturers' Federation, viz.:

- I. That uniform retail prices be charged for comparable hormone weedkiller preparations.

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26 Straight Furrow, 23 : 9, (Nov. 7, 1962).

27 \_\_\_\_\_, 23 : 10, (May 1, 1963).

- II. That agreed discounts be granted to specified classes of purchasers of such preparations.
- III. That no discounts be granted to other specified classes of purchasers of such preparations.
- IV. That uniform prices for comparable products be charged or tendered in the case of sales to, or tenders for the sale of such preparations to special classes of users <sup>28</sup>.

The Trade Practices and Prices Commission also examined an allegation that fertilizer companies had refused to accept orders for phosphatic fertilizer from certain rural trading groups <sup>29</sup>.

In the case of both weedkillers and fertilizers, the Trade Practices and Prices Commission ordered that the particular trade practice be discontinued.

During the last 5 - 6 years there has been a good deal of interest in some form of consumer testing service for farm machinery and agricultural chemical preparations <sup>30</sup>. This testing service was

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28 N.Z. Gazette, No.13, 353, (March 18, 1965).

29 N.Z. Gazette, No.46, 1241, (Aug. 4, 1966).  
 \_\_\_\_\_, No.53, 1442, (Sep.12, 1966).  
 \_\_\_\_\_, No.54, 1466, (Aug.31, 1967).  
 \_\_\_\_\_, No.54, 1466, (Aug.31, 1967).

30 Straight Furrow, 22 : 20, (June 20, 1962).  
 \_\_\_\_\_, 22 : 27, (July 18, 1962).  
 \_\_\_\_\_, 22 : 31, (Aug. 22, 1962).  
 \_\_\_\_\_, 22 : 25, (Oct. 3, 1962).  
 \_\_\_\_\_, 23 : 15, (May 15, 1963).  
 \_\_\_\_\_, 24 : 18, (May 20, 1964).

suggested as a special department of the Consumer Council, with testing done in conjunction with agricultural colleges, research stations and the Department of Scientific and Industrial Research, financed possibly by a grant from the Meat Board. With the formation of the New Zealand Agricultural Engineering Institute at Lincoln College interest in a testing service diminished. This decline in interest is well shown by few remits coming forward from Provinces of Federated Farmers.

Currently there is interest <sup>31</sup> in setting up a comparative testing unit for farm inputs, so it would appear that the New Zealand Agricultural Engineering Institute has not yet fulfilled the function farmers hoped it would when it was originally set up. It must be remembered however, that the terms of reference of the Agricultural Engineering Institute do not specify comparative testing, although at the present time there is some interest in comparative testing by the Institute <sup>32</sup>.

Pearse and Humphries <sup>33</sup> mention a "Consumer Service" approach to testing fence posts and wire under extreme ranges of conditions and Pearse <sup>34</sup> mentions some form of farmers' "Consumer Service" to check periodically on fencing materials because of the importance of fencing to the farming community.

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31 Straight Furrow, 27 : 9, (Sep. 20, 1967).

32 Personal communication with N.Z. Agricultural Engineering Institute Lincoln College, Canterbury, N.Z.

33 H.C.H. Pearse and K.R. Humphries, "Reducing Fencing Costs on Hill Country", Massey Sheepfarming Annual 1966 (Palmerston North, N.Z.), 233.

34 H.C.H. Pearse, "Fencing Efficiency", Farm Forestry, 8 : 3, 23 - 24, (1966).

The New Zealand Farmer <sup>35</sup> makes mention of the need for farmers to seek advice from their veterinary surgeons on the correct administration of drugs. The article suggests that the modern New Zealand farmer cannot possibly hope to obtain the best value from the range of powerful drugs available to him without frequent advice from his veterinary surgeon. It is suggested that too many farmers, with no real knowledge of what they are doing, waste a good deal of money through indiscriminate use of expensive drugs.

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35 "Drugs - Their Use and Abuse", N.Z. Farmer, 25, (April 13, 1967).

## CHAPTER 3

### METHOD OF DATA COLLECTION

#### 3.1 Introduction

To obtain evidence on the felt need by commercial farmers for a farm input evaluation service, a mail survey was undertaken. The mail survey method of obtaining data was used in preference to a personal interview because of cost considerations. The questionnaire was constructed having regard to the limitations of a mail questionnaire, viz., the ability of respondents to answer complicated or slightly ambiguous questions, the possibility of non-response bias being present, and problems associated with sequence bias in the questionnaire.

A mail survey enables any interviewer bias to be removed, but the ability of the respondents to answer "open-ended" questions accurately may be enhanced if an interviewer is present. In comparison with the personal interview technique, the respondent in a mail survey can spend some time in thinking about a question before giving an answer: it is possible to come back to check the questionnaire a number of times. The answer finally given to a question then is likely to portray more accurately the respondent's actual feelings on the subject than if he has no time to reflect, as in a personal interview.

With a mailed questionnaire it is possible for the respondent to look ahead in the questionnaire and read the questions. If the questions are not each read independently it is possible to get "sequence bias", where a completely independent answer is not given to each question. Problems of "sequence bias" do not arise with the personal interview method of obtaining data. In addition, a mail survey does not allow the researcher to have adequate control over the respondent's identity, his possible consultation with other people, and the spontaneity of answering the questions cannot be ascertained.

If an unbiased sample has been drawn from a population initially, then a low response rate may bias the sample. If there is bias, then the extent to which the respondents are representative of the sample is not known. Bias may then introduce a further error besides any possible error associated with the original sampling procedure.

### 3.2 Techniques for High-Response Rates in Mail Surveys

The success and usefulness of a mail survey depends to a large extent on achieving a high response rate. In order to achieve a high response rate the following procedures have been found to be helpful.

Pre-testing of the questionnaire is important. A pre-test provides evidence of the ease with which the respondents will be able to answer the questionnaire. Questions which are difficult to answer, questions which will produce ambiguous or biased replies, the desirable length of the questionnaire, and words which may be misinterpreted are all problems which can be resolved by a pre-test.

Often leading questions relating to some general item will encourage answers from respondents who prefer not to reveal their lack of familiarity with some of the ideas on which they are being questioned <sup>1</sup>. To overcome this tendency for respondents in favour of a particular scheme, and the more progressive farmers who tend to fill out any questionnaire sent to them to answer, Smith <sup>2</sup> has suggested that leading questions be used to obtain returns from possible non-respondents.

One particular point in questionnaire design, which, by adding an element of individuality and personal expression seems to enhance the response rate, is the provision of space so that respondents may add their own comments <sup>3</sup>. The introductory letter used in the survey to interest the respondent and to persuade him to answer the questionnaire may also affect the response rate.

Inclusion of a stamped, addressed return envelope appears to greatly enhance the response rate. Freebairn reports a case where a return of 73.8% was obtained using stamped envelopes compared to 66.8% from using reply-paid envelopes <sup>4</sup>.

A most important technique by which the percentage response may be enhanced is by the use of follow-up reminder mailings. Since the most important reasons for non-reply involve misplacing or overlooking the questionnaire <sup>5</sup>, it is necessary to include a questionnaire and postage paid envelope with each reminder letter or notice.

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1 J.W.Freebairn, "Report on a N.S.W.Mail Survey", Aust.J.agric.Econ., 11 : 93, (1967).

2 R.K.Smith, "The Mailed Enquiry and Methods of Increasing Returns - Discussion", J. Fm. Econ., 31 : 1273, (1949).

3 Freebairn, op.cit., 93.

4 Ibid., 94.

5 Ibid., 92.

The cost of follow-up mailings may become prohibitive if a second reminder notice is used. However the success of a second reminder notice is well shown by Dillon and Jarrett <sup>6</sup> and Freebairn <sup>7</sup>.

Freebairn, in his survey of wheat farmers in New South Wales deduced from the attitude of non-respondents and from subsequent discussion that the main reasons for non-response were <sup>8</sup>:

- (a) 32% overlooked answering or were too busy.
- (b) 26% thought the questionnaire not applicable to them.
- (c) 21% had difficulty contacting their sharefarmer who had much of the information.
- (d) 11% found the questionnaire too difficult.
- (e) 5% had already filled in the questionnaire.
- (f) 5% feared reprisals from the Taxation Office.

Because of the reasons discussed above, it is necessary initially to interest all farmers in the survey, and to impress upon each farmer the importance and necessity of completing the questionnaire. The best means of gaining the farmers' interest in the survey is to use a well-constructed introductory letter.

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6 J.L. Dillon and F.G. Jarrett, "Response Patterns in Some Australian Farm Economic Mail Surveys", Aust. J. agric. Econ., 8 : 82, (1964).

7 Freebairn, op. cit., 88.

8 Ibid., 92.

### 3.3 Response Rates in Mail Surveys

Dillon and Jarrett<sup>9</sup> review five Australian mail surveys. In surveys with no reminder notices mailed, returns of 39% and 57% were obtained. Two surveys, each using proven respondents and one reminder notice produced response rates of 66% and 73% respectively.

In the survey Dillon and Jarrett report<sup>10</sup> a total response of 66% was obtained, 31% from the original mailing, 24% from the first reminder and 11% from the second reminder. Freebairn<sup>11</sup> reports a 72% overall response with two reminders, and a similar response rate with each reminder notice to that obtained by Dillon and Jarrett.

Graham, in his study of fertiliser use in Taranaki reported a response rate of only 16% despite radio and press coverage and field work in the area<sup>12</sup>.

Catt, in a recent research paper published by the New Zealand Institute of Economic Research reports a response rate of 26% amongst share investors in New Zealand. The questionnaire was sent to all clients of four leading sharebrokers. The response obtained was regarded as quite good for this type of questionnaire, especially since a proportion of the names on the stockbrokers' mailing lists were firms, public authorities, and other bodies to whom the questionnaire did not apply<sup>13</sup>.

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9 Dillon and Jarrett, op.cit., 82.

10 Ibid.

11 Freebairn, op.cit., 88.

12 A.B. Ward, The Use of the Telephone as a Survey Method (Discussion Paper No. 45, Department of Agricultural Economics and Farm Management: Massey University, Palmerston North, N.Z.), 2 - 3.

13 A.J.L. Catt, A Portrait of the N.Z. Share Investor (Research Paper No. 9, N.Z. Institute of Economic Research: Wellington, N.Z.), 6.

### 3.4 Problems of Non-Response Bias

From the literature there would seem to be general agreement that a response rate of less than 50% is to be expected<sup>14, 15</sup>. If there is such a response rate there is no way of knowing whether the results obtained from respondents can be used to generalize about the remainder of the population. Even although a random sample may have been chosen in the first instance, there is the problem of dealing with a sample which may be biased when there is only a small percentage response. A low response rate may mean that statistical techniques, presupposing a valid sample, may not always be used on partial returns, since the respondents may constitute an unknown sample. Use of statistical techniques is important in social science, since the investigator, in testing hypotheses, is interested in avoiding both the rejection of a null hypothesis when it should be accepted, and the acceptance of a null hypothesis when it should be rejected.

To solve the difficulty of non-response bias various methods have been devised :-

- I The personal interviewing of a sample of non-respondents and comparing the answers obtained from non-respondents with those obtained from respondents. Time, cost or wide geographical distribution of the sample may make this procedure impracticable.

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14 Ward, op. cit., 3.

15 E.C. Lehman, "Tests of Significance and Partial Returns to Mail Questionnaires", Rur. Sociol., 28 : 284, (1963).

- II Checking for bias on several known factors in the population (e.g. from census data) and then deciding whether non-response would alter the relationships. Several studies <sup>16</sup> have indicated that this method is not necessarily accurate.
- III The assumption of a random distribution of any errors about the research variables due to sampling, and then proceeding as though the questionnaires returned constituted an unbiased sample. This procedure involves ignoring the problem rather than solving it.
- IV Utilization of the observable differences between early and late returns, and on the basis of these differences making inferences as to the direction of response of the non-respondents. This method assumes non-respondents would tend to be more like the respondents who sent their replies in later than like those who sent their replies in earlier.

Kivlin <sup>17</sup> reports that respondents in mail surveys tended to adopt a greater number of recommended farming practices, they tended to be of higher socio-economic status, and perform better on the job, while non-respondents tended to adopt fewer practices, to be of lower socio-economic status, and to perform less well.

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16 Ibid., 285.

17 J.E. Kivlin, "Contributions to the Study of Mail-Back Bias", Rur.Sociol., 30 : 324, (1965).

However, while respondents may have different characteristics from non-respondents which are of interest to the investigation, these differences do not appear to seriously affect the relationships. It would seem that non-response is a broad, fairly uniform factor which need not necessarily disturb the relationships among the variables being investigated <sup>18</sup>. Freebairn <sup>19</sup> suggests it is safe to conclude that if returns to a mail survey are relatively high, answers from respondents can be used to obtain unbiased estimates of the population parameters from which the sample was drawn.

The experience of the New Zealand Institute of Economic Research <sup>20</sup> is that questionnaires with quite low response rates do give satisfactory results. In reviewing the results obtained from these low response rate surveys, the Institute has formed the opinion that willingness to cooperate in filling in questionnaires is not correlated closely with particular attitudes to economic matters. Only in the case of females - where the response was low - did there appear to be any significant differences.

The fact that bias may not affect the relationship one wishes to establish is important for the following reasons: -

- I It seems justifiable <sup>21</sup> to extrapolate from known relationships in a biased sample (relationships which are the same in an unbiased as in a biased sample), to those relationships which are being tested and hence are unknown. This principle needs to be applied with caution as it does not make a biased sample as acceptable as an unbiased sample.

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18 Ibid.

19 Freebairn, op.cit., 92.

20 Catt, op.cit., 6.

21 Kivlin, op.cit., 325.

II It seems reasonable to conclude that if a large number is included in the original sample, that with a response rate of 30 - 40% a sufficient number of replies is available to ascertain the opinions of respondents. Further evidence is available if the replies follow a normal distribution of the type which the researcher suspected to have held originally, viz., that there are a large number who fall in one particular category and only a few who fall in other categories. If the categories are not the same as those originally postulated by the researcher, then bias could be suspected.

Comparison of the differences between early and late returns provides only inferences about the differences between respondents and non-respondents. To actually know the amount or the direction of the bias it is necessary to interview non-respondents. With a knowledge of who are the non-respondents it may be possible to begin assembling a sample of those belonging to a distinct group, e.g. the relative non-adopter, non-participant, or low producer.

### 3.5 Organisation of the Mail Survey

The mail survey used by the author to obtain data on the need for a farm input evaluation service consisted of an introductory letter, a questionnaire, and a postage-paid envelope.

The mailing list was obtained by combining the address lists compiled in earlier surveys conducted by telephone by the Department of Agricultural Economics and Farm Management, Massey University. These surveys were in no way related to the present study. The sample of farmers to which a questionnaire was sent consisted of the following groups :-

- I A New Zealand wide sample, with the omission of the major farming areas of Taranaki, King Country and Gisborne. The farmers in this group had already been contacted by telephone in the summer of 1965-66. The total number of farmers contacted from this group was 427. Two additional farmers were later added to total 429.
- II A group of 429 dairy farmers contacted by telephone in November 1966. This group was virtually the entire farmer population of the Lower Hauraki Plains.
- III A sample of 89 farmers in the Taihape and Pahiatua areas, contacted by telephone in August 1965.
- IV A group of 176 farmers, members of the Manawatu Farm Improvement Club Trading Group and the Manawatu-Wanganui Rural Trading Society Ltd. These farmers had not previously been contacted in the course of a telephone survey.

The questionnaire consisted of two pages of questions with a further blank page so respondents could add their own comments. The introductory letter sent to Groups I, II and III was personally addressed and paper with an official letter-head was used; the letter sent to

Group IV used the more general "Dear Sir" and did not have an official letter-head. Some of the introductory letters were personally signed and others were signed using a rubber stamp. Copies of the questionnaire and introductory letter appear in Appendix B.

### 3.6 The Survey Response

In total 1123 farmers were contacted. Excluding 6 farmers who could not be contacted <sup>22</sup> there were 1117 farmers from whom replies could have been expected. A total of 401 questionnaires was actually returned, which represents a response rate of 36%.

An analysis of the replies from Groups I, II and III and IV showed the following response rates :

Table 3.1

Number of Respondents to the Mail Survey by Group

Group	No. in Sample	No. of Respondents	% Response
I	429	180	42%
II	429	108	25%
III	89	37	42%
IV	176	76	43%

One questionnaire was returned after five months. This questionnaire was used to check for non-response bias as described by Lehman <sup>23</sup>.

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22 Four returned from dead-letter office, 1 deceased, 1 overseas.

23 Lehman, op. cit., 289.

Groups I, II and III were all proven respondents having participated in a telephone survey, and at the same time having indicated their willingness to cooperate in further survey work.

Group IV who were non proven respondents, returned the highest response rate. This high response can probably be explained by the high number of progressive farmers in this group due to membership in a Farm Improvement Club. Local patriotism may also be a contributing factor.

To look more closely at the reasons for non-response in Group II, the author used the data obtained from the Telephone Survey to analyse the farming practices and status of respondents and non-respondents. This analysis involved a total of 429 farmers, 20 of whom had supplied a limited amount of information in the Telephone Survey. This Survey was particularly useful since it was in fact a census of almost an entire population of dairy farmers in the Lower Hauraki Plains.

It was found that there was no significant difference ( $t = 0.66$ , 410 df : N.S.) for the average number of miles from town for respondents (7.23 miles) and non-respondents (6.87 miles).

However it appeared that a greater number of respondents in the mail survey knew the Government Valuation of their farm, when they were asked this question in the Telephone Survey, than was the case for non-respondents.

Table 3.2                    Knowledge of Government Valuation,  
Number of Respondents and Non-Respondents

	Knew G.V.	Did not know G.V.	Total
Respondents	49	55	104
Non-Respondents	109	194	303
Total	158	249	407

$$\chi^2 = 4.19, 1df : 5\% > p > 2.5\%$$

However there appeared to be no difference in either acreage average or range for the two classes.

Table 3.3                    Frequency Distribution of Farm Size,  
Number of Respondents and Non-Respondents

	Number of Acres									Total
	0-50	50-100	100-150	150-200	200-250	250-300	300-350	350-400	400+	
Respondents	0	1	31	45	15	7	4	0	3	106
Non-Respondents	0	4	103	83	59	25	12	7	13	306
Total	0	5	134	128	74	32	16	7	16	412

$$\chi^2 = 10.93, 8df : N.S.$$

The average acreage for respondents (140.80 acres) was lower than that for non-respondents (153.40 acres), but there was no significant differences between the two averages ( $t = 1.28, 410df : N.S.$ ). This finding bears out the evidence of Freebairn<sup>24</sup>.

24 Freebairn, op. cit., 90 - 91.

To see if organisation and management of the farm had any bearing on willingness to respond, the author considered the way the farm was run, the length of time farmers had been responsible for making decisions on their present farms, and how long they intended to continue in the decision-making role. Differences between respondents and non-respondents analysed on these criteria showed no significant difference.

Table 3.4 Farm Organisation,  
Number of Respondents and Non-Respondents

	Way the farm is organised						Total
	Owner/ operator	Private Coy.	Estate	Partner- ship	Combin- ation	Share	
Respondents	52	3	1	13	6	30	105
Non- Respondents	138	2	3	35	19	104	301
Total	190	5	4	48	25	134	406

$$X^2 = 4.18, 5df : N.S.$$

Table 3.5 Average Time in Decision - Making Role in Years ,  
Respondents and Non-Respondents

Average Time and Standard Error (S.E.)	Respondents	Non-Respondents	t
Average length of time in present decision- making role (years).	9.15	8.93	t = 0.21, 403df
S.E.		1.08	N.S.
Average time intends to remain in decision- making role (years).	9.45	9.04	t = 0.41, 306df
S.E.		1.01	N.S.

The percentage ewe equivalent increase for both classes of farmers was considered as an indicator of the dynamism of the farmer, but the difference was not significant. Cow number was also considered, even although it is associated with acreage and production, to compare the result with that obtained by Kivlin<sup>25</sup>. It was found that the average number of cows carried by the two classes of respondents (96.69 cows) and non-respondents (95.00 cows) was not significantly different ( $t = 0.449$ , 407 df : N.S.). However it was felt that there may be some differences between the two classes in the size of herd. (See Table 3.7)

The author felt that one way of looking at possible differences in management efficiency was to look at the past butterfat record, the present butterfat record, and future increases in butterfat which were thought possible. In using these indices as an approximate measure of managerial efficiency it is assumed that both classes of farmers are on the same production function, with other factors being comparable. The mean values for respondents and non-respondents is shown in the following table : -

Table 3.6    Average Butterfat, Respondents and Non-Respondents

Butterfat (000's) and Standard Error	Respondents	Non-Respondents	t
2 year increase (64- 66) S.E.	64.37 7.52	52.82	$t = 1.54$ , 303df: N.S.
Present butterfat S.E.	29.88 3.77	28.97	$t = 0.76$ , 395df: N.S.
Expected increase 1972 S.E.	90.50 8.65	81.88	$t = 0.997$ , 327df: N.S.

<sup>25</sup> Kivlin, op.cit., 323.

Table 3.7

Herd Size, Number of Respondents and Non-Respondents

	Number of Cows										Total
	0-40	40-60	60-80	80-100	100-120	120-140	140-160	160-180	180-200	200+	
Respondents	0	0	8	24	42	15	9	3	3	2	106
Non-Respondents	0	3	31	85	81	51	28	9	6	9	303
Total	0	3	39	109	123	66	37	12	9	11	409

$$\chi^2 = 8.22, 9df : N.S.$$

Table 3.8

Present Butterfat Production, Number of Respondents and Non-Respondents

	Present Butterfat Production (000's lbs)												Total
	<15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65+	
Respondents	4	4	11	23	26	15	10	6	4	1	0	2	106
Non-Respondents	11	16	41	62	73	37	27	15	12	2	6	2	304
Total	15	20	52	85	99	52	37	21	16	3	6	4	410

$$\chi^2 = 5.75, 11df : N.S.$$

The large standard error for the figures for the two-year increase and the 1972 expected increase prevents a meaningful statement from being made as to the significance of the differences shown in the table.

Analysing the present butterfat production over a range from 0 - 65,000 lbs (Table 3.8), no significant difference was found between respondents and non-respondents at different butterfat levels.

To gain some idea of external factors which could be responsible for some farmers not responding to the questionnaire, health and age were considered: these criteria were classified into three broad categories : -

Table 3.9 Age of Farmer,  
Number of Respondents and Non-Respondents

	Age (years)			Total
	Less than 35	35-50	Greater than 50	
Respondents	40	50	16	106
Non-Respondents	92	148	63	303
Total	132	198	79	409

$$\chi^2 = 2.70, 2df : N.S.$$

Table 3.10 Health Rating,  
Number of Respondents and Non-Respondents

	Health			Total
	Fit	Slowing Down	Poor Health	
Respondents	58	47	1	106
Non-Respondents	189	104	11	304
Total	247	151	12	410

$$\chi^2 = 4.82, 2df : 10\% > p > 5\%$$

It appears from the health rating above that there could be some differences due to health of the farmer respondent.

The influence of mass communication media, might suggest that respondents would be those who listen to the radio more frequently and are more likely to have T.V. sets. The tables below show the actual results obtained : -

Table 3.11                      Ownership of Television Sets,  
Number of Respondents and Non-Respondents

	Television Set		
	No T.V.	Owms T.V.	Total
Respondents	14	91	105
Non-Respondents	32	269	301
Total	46	360	406

$$X^2 = 0.57, 1df : N.S.$$

Table 3.12                      Farm Radio Sessions,  
Number of Respondents and Non-Respondents

	Farm Radio Sessions			Total
	Listens frequently	Listens sometimes	Never listens	
Respondents	29	48	26	103
Non-Respondents	83	136	77	296
Total	112	184	103	399

$$X^2 = .004, 2df : N.S.$$

Survey results suggest that mass communication media are not factors prompting farmers to reply.

The author postulated that a more progressive attitude is displayed if farmers are willing to make use of the service of an advisory officer, and are willing to borrow money. Considering both the number of times farmers had been visited by advisory officers and the willingness of farmers to turn to advisory officers for assistance, no significant differences were obtained.

Table 3.13      Advisory Officer Visits in Last Two Years,  
Number of Respondents and Non-Respondents

	Number of visits in last two years									Total
	1	2	3	4	5	6	7	8	9 or more	
Respondents	23	10	4	6	2	5	0	0	7	57
Non-Respondents	53	21	8	4	2	5	0	3	8	104
Total	76	31	12	10	4	10	0	3	15	161

$$\chi^2 = 7.52, 8df : N.S.$$

Table 3.14      Need for an Advisory Officer,  
Number of Respondents and Non-Respondents

	Farmers not visited by adviser in last two years		Total
	Would not like to be visited	Would like to be visited	
Respondents	21	23	44
Non-Respondents	88	102	190
Total	109	125	234

$$\chi^2 = 0.05, 1df : N.S.$$

In addition to willingness to borrow money, the attitude of farmers towards a stocking rate of one cow per acre (with replacements both on and off the farm) was also analysed to look for any differences. These analyses revealed no significant differences.

Table 3.15

Differences Between Respondents and Non-Respondents  
in Relation to Willingness to Borrow and Attitude  
Towards Stocking Rate

Attitude	Significance
Willingness to borrow	$X^2 = 1.46, 1df: N.S.$
One cow per acre with replacements on the farm	$X^2 = 0.26, 2df: N.S.$
One cow per acre with replacements off the farm	$X^2 = 1.55, 2df: N.S.$

The evidence presented above confirms the observations of Catt<sup>26</sup> that non-respondents do not have different opinions from respondents on particular economic matters. Freebairn<sup>27</sup> also comes to this conclusion. It is interesting to note that this evidence is in strong contrast to Kivlin's<sup>28</sup>, who found a higher average number of practices adopted by questionnaire respondents for almost all categories he studied (including number of milking cows and age of farmer). Scott<sup>29</sup> in his review found non-response more common amongst lower socio-economic groups.

The analysis carried out here also provides evidence that an unbiased sample has been obtained, even although Group II farmers had a poor response rate.

26 Catt, op.cit., 6.

27 Freebairn, op.cit., 92.

28 Kivlin, op.cit., 323.

29 C.Scott, "Research on Mail Surveys", Jl.R.statist.Soc., 124: 198, (1961).

### 3.7 Analysis of Factors Affecting Response Rate

The 856 farmers in Groups I and II were sent a report on the survey in which they had participated along with the introductory letter, questionnaire and postage-paid envelope in a brown quarto-sized envelope. The 89 farmers in Group III were split up in the following manner : -

- i. 22 were sent a white send-out envelope with a white franked reply envelope.
- ii. 22 were sent a white send-out envelope with a white stamped reply envelope.
- iii. 22 were sent a brown send-out envelope with a brown franked reply envelope.
- iv. 23 were sent a brown send-out envelope with a brown stamped reply envelope.

The 176 farmers in Group IV received their questionnaire, introductory letter and postage-paid envelope with a mailing from the organisation to which they belonged.

A total number of 390 envelopes of known variety were returned. 11 questionnaires were returned without the original postage-paid envelope.

An analysis of the envelopes returned from Group III was carried out, even although the sample was small, to look for differences between using all white, all brown, or combinations of brown and white stationery. The analysis showed the following:-

Table 3.16Differences Between Types of Envelope Returned, Group III

	Brown send- out, brown stamped reply	Brown send- out, brown franked reply	White send- out, white stamped reply	White send- out, white franked reply	Total
Number returned	10	8	11	8	37
Number not returned	13	14	11	14	52
Total	23	22	22	22	89

$$\chi^2 = 1.16, 3df: N.S.$$

The chi-square test used to look for differences between the types of envelopes returned showed no real difference for members of this group.

From the remainder of the survey the following envelope types were returned.

Table 3.17

Differences Between Types of Envelope Returned,  
Groups I, II and IV

	Brown stamped	Brown franked	White stamped	White franked	Total
Number returned	104	90	88	71	353
Number not returned	154	168	170	187	679
Total	258	258	258	258	1032

$$\chi^2 = 9.46, 3df: 2.5\% > p > 1\%$$

The chi-square test showed there existed a real difference between the types of envelopes returned, indicating that good response

rates could be obtained using the cheaper brown envelope.

An analysis of the total number of envelopes returned from the survey shows : -

Table 3.18

Differences Between Types of Envelope Returned,  
Entire Survey

	Brown stamped	Brown franked	White stamped	White franked	Total
Number returned	114	98	99	79	390
Number not returned	167	182	181	201	731
Total	281	280	280	280	1121

$$\chi^2 = 9.50, 3df: 2.5\% > p > 1\%$$

The chi-square test used to look for differences between the types of envelopes returned showed that for the entire survey brown envelopes gave the best response, with brown stamped envelopes giving the highest response rate.

A comparison of stamped versus franked envelopes showed the following: -

Table 3.19

Differences Between Stamped and Franked Envelopes

	Stamped	Franked	Total
Number returned	213	177	390
Number not returned	348	383	731
Total	561	560	1121

$$\chi^2 = 5.09, 1df: 2.5\% > p > 1\%$$

The chi-square test used here to look for differences between stamped and franked envelopes is significant, bearing out the observation of Freebairn<sup>30</sup> and Scott<sup>31</sup> that stamped envelopes produce a better response rate than reply-paid envelopes.

To see whether ambiguity of questions could have affected the response rate, the construction of one question, judged by the author to be the most ambiguous, was varied in the questionnaire. This question related to the inputs farmers considered to be in need of testing. In one type of questionnaire four broad categories were mentioned : in the other type of questionnaire no categories or examples were mentioned.

The ratio of the two types of questionnaires returned is shown below:

$$202 : 199. \quad X^2 = 0.02, \quad 1df : N.S.$$

A chi-square analysis to test a 1 : 1 ratio showed that the change in the question form had not affected the response rate at all.

To see if there was any difference when a personally signed letter was used in preference to a stamped signed letter, the replies from Groups I and III (which both had a 42% response rate) were examined, as shown in the following table:

Table 3.20 Differences in Signature for the Introductory Letter

	Personally signed	Stamped signed	Total
Number returned	164	48	212
Number not returned	217	87	304
Total	381	135	516

$$X^2 = 2.19, \quad 1df : N.S.$$

30 Freebairn, op.cit., 94.

31 Scott, op.cit., 170.

The chi-square test showed there was no significant difference in response rate between the two groups. This is probably due to the fact that the rubber stamp used provided a signature which was very similar to that obtained from a personal signature. This result is borne out by Scott's<sup>32</sup> review of mail survey technique.

Scott also indicates that there is no difference in the form of address<sup>33</sup> and letterhead<sup>34</sup>: this observation is supported here by the similar response rate obtained from Group IV in contrast to that of Groups I and II. Freebairn<sup>35</sup> also found no difference between using a personally addressed and a general "Dear Sir" addressed letter.

### 3.8 The Test for Response Bias

To gain some idea of the bias of the sample who returned the questionnaire, it was decided to take the answers to one of the strategic questions and relate these answers to those who wanted a report on the survey. The strategic question chosen related to the need for a farm input evaluation service.

The author postulated that farmers who felt there was a need for a farm input evaluation service would also want a report on the survey undertaken. Alternatively farmers who did not feel the need for a farm input evaluation service would not be interested in obtaining a report on the survey. The following table shows how farmers actually replied: -

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32 Ibid., 173.

33 Ibid.

34 Ibid., 174.

35 Freebairn, op.cit., 93.

Table 3.21

Farmers Who Wanted a Report on the Survey in Relation  
To Those Who Felt an Input Evaluation Service was Needed

	No answer	"No" for service	"Yes" for service	Don't know	Total
No answer	1	1	22	2	26
Do not want report	0	4	12	5	21
Want report	0	13	332	9	354
Total	1	18	366	16	401

Using only those respondents who replied definitely "Yes" or "No", the following table is obtained : -

Table 3.22

Farmers Who Wanted a Report on the Survey in Relation to  
Those Who Felt an Input Evaluation Service was Needed  
(including only "Yes" and "No".)

	"No" for service	"Yes" for service	Total
Do not want report	4	12	16
Want report	13	332	345
Total	17	344	361

The fact that not all farmers who felt the need for a farm input evaluation service wanted a report, would seem to indicate that an

unbiased sample of farmers had sent in their questionnaires. The 3.6% of the farmers who felt the need for a farm input evaluation service, but who did not want a report on the survey again supports the observations of various authors<sup>36, 37</sup> that respondents in a mail survey do not necessarily constitute a biased sample.

### 3.9 Conclusions

The evidence presented here would seem to indicate that no serious bias was present, even although a response rate of only 36% was obtained. On the basis of the sample obtained here being an unbiased sample, the author has extrapolated from this sample of respondents to the entire population of farmers in New Zealand.

The results obtained from using different coloured envelopes showed that brown envelopes provided a better response than the more expensive and higher quality white envelopes.

The author is of the opinion that more use could be made of mail surveys in agricultural economic research in New Zealand. Using cheaper brown stationery, the cost of a second reminder notice may not be prohibitive and a high response may be obtained, hence reducing problems of non-response bias.

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36 Catt, op.cit., 5.

37 Freebairn, op.cit., 92.

## CHAPTER 4

### THE RESULTS OF THE MAIL SURVEY

#### 4.1 Introduction

The data from the survey has been analysed in two ways:-

- I. Using the total 401 questionnaires as a sample of the population of all sheep, dairy and mixed farmers in New Zealand.
- II. Using a total of 272 questionnaires, 173 of which were sent in by dairy farmers, 53 by sheep farmers and 46 by mixed farmers. Enterprise grouping of farmers was used to detect any significant differences in the response by enterprise grouping. In analyses involving enterprise type an adjustment has been made for unequal sample sizes <sup>1</sup>.

Most of the questions asked were simple, direct questions of the "Yes" or "No" type, which could be coded directly from the questionnaire. Where the "open ended" questions could not be coded directly, the answers were taken directly from the questionnaire after the processing of the results.

The data was compiled using an I.B.M. 1620 computer.

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1 In carrying out this adjustment the author has adjusted the number of sheep and mixed farmers assuming that 173 had answered, i.e. by multiplying the number of sheep farmers by 3.26 and mixed farmers by 3.76. Only the adjusted figures are shown in Tables 4.7 to 4.16 and in Table 4.34: in other tables an asterisk has been used to show adjusted numbers, e.g. 45 = 147/173 means 45 x 3.26 = 147 farmers out of 173 farmers.

#### 4.2 Farmers' Familiarity with the Consumer Council

The first two questions on the questionnaire were concerned with the number of farmers who were familiar with the services of the Consumer Council (which has been in existence nine years) and the number who were subscribers to the Consumer Council's magazine "Consumer",

Table 4.1

#### Familiarity with the Consumer Council in Relation to "Consumer" Subscribers

Subscriber to "Consumer"	Familiarity with Consumer Council Services			
	No	Yes	Partly Familiar	Total
No answer	0	1	0	1
No	0	182	2	184
Yes	2 <sup>2</sup>	127	0	129
Discontinued	1	5	0	6
N.A. as not familiar with Consumer Council	81	0	0	81
<b>Total</b>	<b>84</b>	<b>315</b>	<b>2</b>	<b>401</b>

Over three quarters (78%) of the farmers were familiar with the services offered by the Council, while only 21% were not familiar with the services provided. Only two farmers regarded themselves as partly familiar with the Consumer Council.

The high percentage of farmers who were familiar with the Consumer Council and its activities indicates either, (i) that the Consumer Council has been successful in its extension work to the

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2 This apparent discrepancy may mean that these two farmers misunderstood the question or that merely subscribing to the journal did not, in their opinion, equate with a knowledge of the services offered by the Consumer Council.

farming community, especially when its services are not directed specifically to the farm business unit, or (ii) that farmers are more keenly aware of the value of the service.

Of the 401 farmers who replied, 46% were not "Consumer" subscribers: 20% could not be subscribers since they were not familiar with the services provided by the Consumer Council. One third (32%) of the farmers who returned a questionnaire were "Consumer" subscribers. Six farmers had discontinued their subscriptions to "Consumer".

Of the total 315 farmers who were familiar with the services of the Consumer Council there were 40% who were also subscribers to "Consumer": 58% of those familiar with the Consumer Council services were not subscribers to "Consumer". Only 2% (5) had discontinued their "Consumer" subscription.

According to the Consumer Council <sup>3</sup>, 6.6% of the 72,000 farmers in New Zealand (see Appendix C for details of the derivation of this estimate) are "Consumer" subscribers while 9% of the total households in New Zealand <sup>4</sup> are subscribers to the magazine. The figures obtained from the mail survey may indicate that a higher percentage of farmers who were "Consumer" subscribers returned the questionnaire because they knew the advantages associated with Consumer Council membership.

The large percentage of the 315 farmers familiar with Consumer Council services, who were also "Consumer" subscribers, would seem to indicate that farmers are genuinely interested and active in the "consumer movement" and realise the advantages of obtaining a "best buy". Further evidence for this opinion is obtained from the small number of farmers who had discontinued their "Consumer" subscription.

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3 Personal communication with N.Z. Consumer Council, Wellington, N.Z.

4 N.Z. Dept. of Statistics, N.Z. Official Year Book 1967 (Wellington: Government Printer), 544.

Analysing the question concerned with familiarity with the Consumer Council on an enterprise type basis the following table was obtained:

Table 4.2

Familiarity with the Consumer Council by Enterprise Type

Familiarity with Consumer Council services	Enterprise Type			
	Sheep	Dairy	Mixed	Total
No	8	54	6	68
Yes	45=147/173*	117	40=150/173*	202
Partly familiar	0	2	0	2
Total	53	173	46	272

\*Adjusted for unequal sample size.

There is a significant difference between sheep, dairy and mixed farmers in their familiarity with the Consumer Council. 85% of the sheep farmers and 87% of the mixed farmers contacted were familiar with the services of the Consumer Council, compared to only 68% of the dairy farmers.

It would appear then that sheep and mixed farmers and their families are more "consumer conscious" than dairy farmers, and the possibility of a sheep farming organisation working with the Consumer Council should be considered. The more "consumer conscious" attitude amongst sheep and mixed farmers would seem to be borne out by noting the farmers who were "Consumer" subscribers.

Table 4.3

"Consumer" Subscribers by Enterprise Type

Subscriber to "Consumer"	Enterprise Type			Total
	Sheep	Dairy	Mixed	
No answer	0	1	0	1
No	23	72	22	117
Yes	21=69/173*	46	18=68/173*	85
Discontinued	1	3	0	4
N.A. as not familiar with Consumer Council	8	51	6	65
<b>Total</b>	<b>53</b>	<b>173</b>	<b>46</b>	<b>272</b>

\* Adjusted for unequal sample size.

Sheep farmers accounted for 38% of the subscribers and 37% were mixed farmers, while only 25% were dairy farmers ( $\chi^2 = 5.55$ , 2df : 10%  $> p > 5\%$ ). This may indicate that dairy farmers are already reasonably well catered for by cooperative trading and Farm Improvement Club trading, in which dairy farmers are more prominent.

4.3 The Need for an Input Testing Service

Farmers in general felt there was a need for an input evaluation service, with 91% indicating there was a need for a service of this nature. Of the remainder 4% (16) did not feel there was any need and another 4% (16) did not express any opinion. Only 1 farmer failed to answer this question.

There was no difference between enterprise type as to the need for a testing service: -

Table 4.4

Need for a Testing Service by Enterprise Type

The Need for a Testing Service	Enterprise Type			
	Sheep	Dairy	Mixed	Total
No answer	0	1	0	1
No	1	10	3	14
Yes	50=153/173*	150	42=158/173*	242
Don't know	2	12	1	15
Total	53	173	46	272

\*Adjusted for unequal sample size.

Sheep and dairy farmers each constituted 33% of the total while mixed farmers made up the remaining 34%.

A greater number of farmers appeared to feel the need for a testing service if they were familiar with the services of the Consumer Council than if they were not familiar. The following table illustrates this point: -

Table 4.5

Need for a Testing Service in Relation to Familiarity  
With the Consumer Council

The Need for a Testing Service	Familiarity with Consumer Council services							
	No		Yes		Partly familiar		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	0	0	1	0	0	0	1	0
No	6	7	12	4	0	0	18	5
Yes	68	81	296	94	2	100	366	91
Don't know	10	12	6	2	0	0	16	4
Total	84	100	315	100	2	100	401	100

Farmers who felt the need for a testing service were also cross tabulated with those who were "Consumer" subscribers : -

Table 4.6

Need for a Testing Service in Relation to  
"Consumer" Subscribers

Subscriber to "Consumer"	The Need for a Testing Service									
	No answer		No		Yes		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	0	0	0	0	1	0	0	0	1	0
No	1	100	11	61	169	46	3	20	184	46
Yes	0	0	1	6	124	34	4	25	129	32
Discontinued subscription	0	0	0	0	6	2	0	0	6	2
N.A.	0	0	6	33	66	18	9	55	81	20
Total	1	100	18	100	366	100	16	100	401	100

It is noteworthy that of the 366 farmers who felt there was a need for a testing service, 46% were not "Consumer" subscribers. Of the 18 who felt there was no need for a testing service, 61% (11) were not subscribers to "Consumer".

It would seem then that familiarity with the Consumer Council is not an important factor in determining the need for an input evaluation service. There appears to be a genuine need for a testing service amongst all farmers, as farmers who were unfamiliar with Consumer Council activities felt there was a need for such a service.

#### 4.4 The Items which Farmers Indicated Needed Testing

The items farmers considered required testing covered a wide range - from farm machinery to general farm requisites. This particular question was phrased in two different ways to avoid the two following possibilities:

- I Farmers being unaware of what sort of items were being referred to.
- II Farmers being too restricted in their choice and not mentioning particular items which may have presented problems in the past.

Half of each type of questionnaire was sent to the farmers contacted. A similar number of each type of questionnaire was returned.

In the type of questionnaire described by I, four broad categories of farm inputs were mentioned, viz., farm machinery, veterinary supplies, fencing supplies and general farm requisites. Farmers were asked to write down the items as successive options. These were the only questionnaires used to look for differences in enterprise type amongst farm machinery, veterinary supplies, fencing supplies and general farm requisites.

For the type of questionnaire described by II no categories of inputs were mentioned. This type of questionnaire produced a wide variety of items. Farmers were asked to give preference to the items they felt needed testing and the first four items that were mentioned were coded.

#### 4.4.1 Total of all Items Mentioned

With a total of 401 questionnaires returned and with only the first four options coded, there were 1604 answers which could be received.

No answer was given by 15% (240) in either one or all of the four options and 5% (81) were not expected to reply (having said there was no need for a testing service).

When certain inputs were suggested the following numbers were returned : -

Farm machinery	189
Veterinary supplies	184
General farm requisites	183
Fencing supplies	172

Deducting those who gave no answer, those who were not expected to reply, and those who returned a questionnaire with the inputs suggested, a total of 555 remains. In this group the following numbers were mentioned:-

Drenches	37	times
Farm machinery	35	"
Milking machines	34	"
Detergents	32	"
Tractors	27	"
Dips	19	"
Stock foods, poultry foods, dog crackers, concentrates	19	"
Milking machine rubberware	18	"
Veterinary supplies	18	"

Fertiliser	16 times
Stock licks	14 "
Weedicides	12 "
Fencing	11 "

The classification of other items appears in Appendix D.

#### 4.4.2 First Preference

Here 23 farmers gave no answer: 14 of these farmers returned a questionnaire where no examples of inputs were given.

Where inputs were mentioned 46% of the farmers suggested farm machinery, 33% veterinary supplies and 19% general farm requisites. Fencing supplies were mentioned by only 2%.

Where there was no restriction on the choice of items, milking machines were most frequently mentioned (13%). In addition 9% mentioned drenches, 9% detergents, while farm machinery and tractors were mentioned by 7%: 5% mentioned veterinary supplies, while 4% suggested either milking machine rubberware, fertiliser or dips. Other items mentioned appear in Appendix D.

The results of the above analysis show quite clearly that farm machinery and certain chemical preparations are considered to be most in need of testing. To gain some idea of the difference between farm enterprise types, items suggested were cross-tabulated with the different types of farmers who responded. In the case of farm machinery the following table is obtained : -

Table 4.7

Farm Machinery Testing, Preference 1.

	Sheep	Dairy	Mixed	Total
No.	29	38	49	116
%	25	33	42	100

This table bears out the relationship one would expect, viz., that mixed farmers are the most concerned about the testing of farm machinery with 42% of those suggesting the testing of farm machinery being mixed farmers. Dairy farmers, being the next most mechanised group, constituted only 33% of the total. Only 25% of the group were sheep farmers.

An analysis of veterinary supplies by enterprise type is also relevant : -

Table 4.8

Veterinary Supply Testing, Preference 1.

	Sheep	Dairy	Mixed	Total
No.	13	27	15	55
%	24	49	27	100

As would be expected, dairy farmers felt the greatest dissatisfaction with veterinary supplies, making up 49% of the sample. This is a reflection of the greater intensification of dairy farming and the increasing concern with respect to chemical residues and resistant strains.

General farm requisites were also considered an important group in the first preference : -

Table 4.9

General Farm Requisite Testing, Preference 1.

	Sheep	Dairy	Mixed	Total
No.	13	22	8	43
%	30	51	19	100

Dairy farmers showed most interest in the testing of general farm requisites (51% of the total).

4.4.3 Second Preference

The second preference showed a similar pattern to that of the first preference.

Thirty-nine farmers gave no answer and there were 20 farmers for which this question was not applicable (as they felt there was no need for a testing service). Where inputs were mentioned farm machinery was the most important, 31% suggesting it as their second preference, whilst 31% mentioned veterinary supplies and 29% general farm requisites. Fencing supplies were mentioned by only 9% of the farmers.

Where there was no indication of the categories of farm inputs, 9% mentioned farm machinery, 8% drenches, 6% detergents, 6% stock licks, 5% milking machine rubberware, 5% dips and 5% tractors. Other items are shown in Appendix D.

Analysed on an enterprise type basis this second option showed the following enterprise grouping for farm machinery : -

Table 4.10

Farm Machinery Testing, Preference 2.

	Sheep	Dairy	Mixed	Total
No.	10	28	19	57
%	18	49	33	100

Dairy farmers stand out here as the group most concerned with the testing of farm machinery. This phenomenon is to be expected because of the rapid increase in mechanisation on the dairy farm, e.g. mechanical aids in herringbone sheds and the fact that innovation has been at a faster rate.

For veterinary supplies the following figures were obtained : -

Table 4.11

Veterinary Supply Testing, Preference 2.

	Sheep	Dairy	Mixed	Total
No.	29	28	15	72
%	40	39	21	100

As expected, sheep and dairy farmers, i.e. live-stock dominant enterprises, emphasize veterinary supplies.

In the case of drenches analysed on an enterprise type basis, 9 out of 272 farmers suggested that these be tested.

Table 4.12

Drench Testing, Preference 2.

	Sheep	Dairy	Mixed	Total
No.	20	1	8	29
%	69	3	28	100

Sheep farmers constituted 69% of those who wanted drenches tested. This result was to be expected as sheep farmers are important users of drenches and problems arise as to the most appropriate one to use, especially when it is difficult to identify the specific infestation. Stock licks appeared to be a problem amongst both sheep and mixed farmers : -

Table 4.13

Stock Lick Testing, Preference 2.

	Sheep	Dairy	Mixed	Total
No.	7	3	8	18
%	39	17	44	100

Fencing becomes more important as an option as one moves from the first to the fourth option. For the second option the following relationship holds : -

Table 4.14

Fencing Tests, Preference 2.

	Sheep	Dairy	Mixed	Total
No.	10	5	15	30
%	33	17	50	100

#### 4.4.4 Third Preference

Fencing becomes a most prominent item as a third option. Of the farmers who sent back the questionnaire where items were mentioned, 28% suggested fencing supplies in comparison to only 21% suggesting veterinary supplies and 16% suggesting farm machinery. However 35% suggested general farm requisites.

In total an answer was not expected from 20 farmers because they had indicated they felt no need for a testing service. There were 71 farmers who did not offer a third option: 6 farmers offered options which did not fit the coding.

Where there was no guidance as to the items to be selected, 5% suggested stock foods, 4% drenches, 4% tractors, 4% vaccines and 4% farm machinery. Other items appear in Appendix D.

An analysis of fencing supplies on the basis of enterprise type suggests dairy, as well as mixed farmers have a need for greater information with respect to fencing.

Table 4.15

#### Fencing Tests, Preference 3.

	Sheep	Dairy	Mixed	Total
No.	16	19	34	69
%	23	28	49	100

#### 4.4.5 Fourth Preference

On consideration of the fourth option dairy farmers become quite concerned about fencing. From questionnaires where actual categories were specified, 59% of the farmers mentioned fencing supplies.

The other three categories accounted for 17% or less.

With no categories suggested, 6% mentioned fencing supplies, 5% veterinary supplies, 5% wire, wire-netting, staples, nails, 5% milking machines, 5% stock foods, 4% farm machinery, 4% dips and 4% drenches. Other items mentioned appear in Appendix D.

Splitting the figure obtain for fencing up into the various enterprise types, the table shown below is obtained.

Table 4.16

Fencing Tests, Preference 4.

	Sheep	Dairy	Mixed	Total
No.	26	54	15	95
%	27	57	16	100

Dairy farmers here express a great deal of concern with fencing supplies. With the greater intensification of dairy farming it is to be expected that problems would be encountered in the best type of fencing to use. Concern will not only be felt for the best fencing materials, but also for different fencing designs.

#### 4.5 The Need for Service Evaluation

This question was designed to see if there was dissatisfaction with the services offered to the farmer and follows the trend of the Consumer Council in looking towards not only the testing of goods, but also the testing of services. Examples given to explain the sorts of service which could be tested were : -

- i. Hire purchase agreements.
- ii. Guarantees.
- iii. Share farming agreements (especially dairy).

- iv. Milking machine servicing.
- v. Soil testing agencies.
- vi. Farm advisory services.

There were 316 (79%) of the 401 farmers who felt there was a need for the evaluation of services: only 10% felt there was no need while 9% did not know: 2% (7) gave no answer to this question.

To investigate whether familiarity with the Consumer Council made farmers more likely to consider that services needed testing, a cross tabulation of familiarity with the Consumer Council and the need for service evaluation was carried out (see Table 4.17).

It would seem that familiarity with the services of the Consumer Council is not a factor which would make farmers feel service evaluation is necessary. There appears to be a genuine felt need for this type of testing by all farmers.

An analysis was carried out to examine the felt need for both a testing service for farm inputs and a testing service to evaluate farm services. Results are shown in Table 4.18.

In this analysis 74% of the 401 respondents felt there was a need for both a testing service and service evaluation: 8% considered there was a need for a testing service, but no need for service evaluation. Only 2% felt there was a need for service evaluation but not a need for testing goods and another 2% indicated there was no need for either of these services.

Table 4.17

Need for Service Evaluation in Relation to Familiarity with the Consumer Council

The Need for Service Evaluation	Familiarity with Consumer Council Services							
	No		Yes		Partly familiar		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	1	1	6	2	0	0	7	2
No	8	10	33	10	0	0	41	10
Yes	68	81	246	78	2	100	316	79
Don't know	7	8	30	10	0	0	37	9
Total	84	100	315	100	2	100	401	100

Table 4.18

Need for Service Evaluation in Relation to Need for a Testing Service

The Need for Service Evaluation	The Need for a Testing Service									
	No answer		No		Yes		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	1	0	2	1	4	1	0	0	7	2
No	0	0	7	2	32	8	2	1	41	11
Yes	0	0	8	2	298	74	10	2	316	78
Don't know	0	0	1	0	32	8	4	1	37	9
Total	1	0	18	5	366	91	16	4	401	100

Comparing the answers from different enterprise types the following table is obtained : -

Table 4.19

Need for Service Evaluation by Enterprise Type

The Need for Service Evaluation	Enterprise Type							
	Sheep		Dairy		Mixed		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	1	2	4	2	2	4	7	2
No	8	15	15	9	3	7	26	10
Yes	38	72	141	82	30	65	209	77
Don't know	6	11	13	7	11	24	30	11
Total	53	100	173	100	46	100	272	100

Taking the farmers who felt there was a need for service evaluation, and adjusting for unequal sample sizes, it was found that 37% were dairy farmers, 33% were sheep farmers and 30% were mixed farmers ( $\chi^2 = 3.37$ , 2df: N.S.), indicating there was no difference between enterprise types.

#### 4.6 The Need for Improved Labelling

Through the "consumer movement" a good deal of effort has been diverted to improved labelling. To gain some idea of the extent of this problem with agricultural inputs, farmers were asked whether they felt labelling to be adequate. Approximately one half (48%) of the respondents felt that the labelling on stock licks, drenches, dips, etc., was adequate: 37% felt labelling was not adequate and 14% did not express any opinion. Only 3 farmers gave no answer.

It is possible that familiarity with Consumer Council services could make one more conscious of the need for better labelling.

Table 4.20

Adequacy of Labelling in Relation to Familiarity  
With the Consumer Council

The Adequacy of Labelling	Familiarity with Consumer Council services.							
	No		Yes		Partly familiar		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	1	1	2	1	0	0	3	1
No	29	34	117	37	1	50	147	37
Yes	36	43	157	50	1	50	194	48
Don't know	18	22	39	12	0	0	57	14
Total	84	100	315	100	2	100	401	100

Adjusting for sample size a  $X^2$  test showed that farmers' felt labelling was adequate irrespective of their familiarity with Consumer Council services ( $X^2 = 1.66$ , 1df: N.S.).

#### 4.7 Membership in a Trading Group

The answers given to this question may be biased as 16% of the farmers contacted were either members of a Farm Improvement Club (F.I.C.) Trading Group or a similarly organised rural trading group.

However in reply to this question, 64% of the 401 farmers who sent back questionnaires were not members of any trading group: 17% were members of a Farm Improvement Club Trading Group and 15% were members of a similar type of rural trading group. Only 3% belonged

to both a Farm Improvement Club Trading Group and a similar type of rural trading group. Three farmers did not answer this question.

Analysing trading group membership on an enterprise type basis the following table is obtained.

Table 4.21

Membership in Trading Groups by Enterprise Type

Membership in rural trading group	Enterprise Type							
	Sheep		Dairy		Mixed		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	1	2	2	1	0	0	3	1
F.I.C. Trading group	2	4	13	8	2	4	17	6
Similar trading group	8	15	26	15	10	22	44	16
Member of neither	42	79	131	76	34	74	207	77
F.I.C. and similar trading group	0	0	1	0	0	0	1	0
<b>Total</b>	<b>53</b>	<b>100</b>	<b>173</b>	<b>100</b>	<b>46</b>	<b>100</b>	<b>272</b>	<b>100</b>

No one particular farming enterprise dominated any category. However any conclusions drawn here need to be treated with caution because of the limited sample which has been used.

#### 4.8 The Appropriate Organisation to do the Testing

Farmers were asked what particular organisation they felt would be the most appropriate to do input evaluation work. Twelve farmers did not answer the question. Approximately one half (51%) of the 401 farmers suggested that the Consumer Council would be the most appropriate body to do the testing. The three other organisations suggested as possible bodies to do the testing were: -

Federated Farmers	14%
Farm Improvement Club Trading Group	8%
Rural trading group	3%

Each of the following suggestions was supported by 2% of the farmers: -

- (i) a special council.
- (ii) the New Zealand Agricultural Engineering Institute or an extension of it.
- (iii) a combination of the Consumer Council and Federated Farmers.

Other options which were mentioned are shown in Appendix D.

To see if there was any association between familiarity with the Consumer Council and the organisation to do the testing the two were cross tabulated: -

Table 4.22

The Appropriate Organisation to do Testing in Relation to  
Familiarity with the Consumer Council

Organisation to do Testing	Familiarity with Consumer Council services							
	No		Yes		Partly familiar		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	6	7	6	2	0	0	12	3
Consumer Council	23	28	178	56	2	100	203	51
F.I.C. Trading Group	12	14	19	6	0	0	31	8
Similar trading group	5	6	6	2	0	0	11	3
Federated Farmers	26	31	32	10	0	0	58	14
Other	12	14	74	24	0	0	86	21
<b>Total</b>	<b>84</b>	<b>100</b>	<b>315</b>	<b>100</b>	<b>2</b>	<b>100</b>	<b>401</b>	<b>100</b>

It would appear that farmers familiar with the activities of the Consumer Council felt the Consumer Council would provide the best testing organisation. The farmers who knew little or nothing about the Consumer Council suggested either the Consumer Council or Federated Farmers. The Farm Improvement Club Trading Group was considered a possible testing organisation by a relatively large number of farmers unfamiliar with Consumer Council services (14%). However it seems farmers who knew the value of the Consumer Council were keen to see this organisation just extend its activities into farm input evaluation.

To see if membership in a trading group affected the way respondents answered, the answers to these two questions were cross tabulated.

Table 4.23

The Appropriate Organisation to do Testing in Relation  
to Membership in Trading Groups

Organisation to do Testing	No answer		F.I.C. Trading group		Similar Trading group		Member of neither		Member of both		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	1	34	0	0	1	2	9	3	1	7	12	3
Consumer Council	1	33	36	54	27	46	134	52	5	39	203	51
F.I.C. Trading Group	0	0	3	5	2	3	25	9	1	7	31	8
Similar trading group	0	0	1	1	3	5	7	3	0	0	11	3
Federated Farmers	1	33	7	10	9	15	40	16	1	8	58	14
Other	0	0	20	30	17	29	44	17	5	39	86	21
<b>Total</b>	<b>3</b>	<b>100</b>	<b>67</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>259</b>	<b>100</b>	<b>13</b>	<b>100</b>	<b>401</b>	<b>100</b>

Members of trading groups do not appear to feel their trading organisation is a more suitable organisation to do the testing than other organisations. A high percentage of trading group members were in favour of the Consumer Council.

There were marked differences between enterprise type as to the best organisation to do the testing.

Table 4.24

The Appropriate Organisation to do Testing by Enterprise Type

Organisation to do Testing	Enterprise Type							
	Sheep		Dairy		Mixed		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	2	4	9	5	0	0	11	4
Consumer Council	32	60	79	45	21	46	132	48
F.I.C. Trading Group	4	8	13	8	5	11	22	8
Similar trading group	1	1	5	3	2	4	8	3
Federated Farmers	3	6	38	22	4	8	45	17
Other	11	21	29	17	14	31	54	20
Total	53	100	173	100	46	100	272	100

Adjusting for unequal sample size sheep farmers may be in favour of the Consumer Council ( $\chi^2 = 4.8$ , 2 df:  $10\% > p > 5\%$ ). This would appear to be due to the fact that sheep farmers are more familiar with the services of the Consumer Council and a large number are also subscribers to "Consumer".

Of those farmers who suggested Federated Farmers as a testing organisation, dairy farmers seemed to be predominant. 63% of the farmers who suggested Federated Farmers were dairy farmers - this may mean that dairy farmers are more active members of Federated Farmers than are other farmers.

#### 4.9 Willingness to Pay for a Testing Service

In answer to this question 71% (283) of the 401 farmers replied that they were willing to pay for a testing service and only 13% were not prepared to pay anything to support a service of this sort. There were 3% who were willing to pay if the scheme was made compulsory for all: 2% of the farmers did not answer this question, while another 2% suggested they would be willing to pay if : -

- (i) the scheme was Government subsidised.
- (ii) the testing organisation gave an opinion on the article tested.

Other reasons which were suggested appear in Appendix D.

To see if there was any association between familiarity with the Consumer Council and willingness to pay for a testing service these two questions were cross tabulated : -

Table 4.25

#### Willingness to Pay for Testing in Relation to Familiarity With the Consumer Council

Willingness to pay for service	Familiarity with Consumer Council services							
	No		Yes		Partly familiar		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	3	4	4	1	0	0	7	2
No	18	21	32	10	1	50	51	13
Yes	48	57	234	74	1	50	283	70
If compulsory for all	3	4	8	3	0	0	11	3
Other	12	14	37	12	0	0	49	12
Total	84	100	315	100	2	100	401	100

It would appear from the table above that familiarity with Consumer Council services is associated with a willingness to pay for a testing organisation. This may be due to the fact that farmers who are interested in Consumer Council activities are the more progressive farmers who would be willing to pay for a testing service anyway.

Subscribers to "Consumer" may also be more willing to pay than non-subscribers are and this group of farmers was cross tabulated with the question on the farmers' willingness to pay : -

Table 4.26

Willingness to Pay for Testing in Relation  
to "Consumer" Subscribers

Willingness to pay for service	Subscriber to "Consumer"											
	No answer		No		Yes		Discon- tinued		Not familiar with Consumer Council		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	0	0	3	1	3	2	0	0	1	1	7	2
No	0	0	29	16	4	3	0	0	18	22	51	13
Yes	1	100	128	70	103	80	4	67	47	58	283	70
Other	0	0	24	13	19	15	2	33	15	19	60	15
Total	1	100	184	100	129	100	6	100	81	100	401	100

It would seem that farmers who were "Consumer" subscribers were more willing to pay for a testing service than non-subscribers were. However a relatively high percentage of farmers who were not familiar with the services of the Consumer Council were willing to pay for an input evaluation service.

Cross tabulating the questions on the testing service and the willingness of farmers to pay for this service, the following table is obtained : -

Table 4.27

Willingness to Pay for Testing in Relation  
to the Need for a Testing Service

Willingness to pay for service	The Need for a Testing Service									
	No answer		No		Yes		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	1	100	0	0	5	1	1	5	7	2
No	0	0	12	66	33	9	6	38	51	13
Yes	0	0	3	17	274	75	6	38	283	70
Other**	0	0	3	17	54	15	3	19	60	15
Total	1	100	18	100	366	100	16	100	401	100

\*\* Subject to certain conditions, e.g. Government participation.

A large percentage (75%) of those who felt there was a need for a testing service were also willing to pay for the service. Only 9% were not willing to pay for the service.

It is possible that members of a trading group, being more used to paying for services, would be more willing to pay for a testing service : -

Table 4.28

Willingness to Pay for Testing in Relation  
to Membership in Trading Group

Willingness to pay for service	Membership in Trading Group											
	No answer		F.I.C. Trading Group		Similar trading group		Member of neither		Member of both		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	2	67	1	2	0	0	3	1	1	8	7	2
No	0	0	5	7	7	12	38	15	1	8	51	13
Yes	1	33	45	67	43	73	185	71	9	69	283	70
Other	0	0	16	24	9	15	33	13	2	15	60	15
Total	3	100	67	100	59	100	259	100	13	100	401	100

Farmers who are members of a trading group do not seem more prepared to pay for a testing service. Members of Farm Improvement Club Trading Groups would seem prepared to pay only if there were a large number of privisos.

The analysis of whether a farmer was willing to pay on an enterprise type basis showed no difference between sheep, dairy and mixed farmers. ( $\chi^2 = 1.8$ , 2 df: N.S.).

Table 4.29

Willingness to Pay by Enterprise Type

Willingness to pay	Enterprise Type			Total
	Sheep	Dairy	Mixed	
No answer	0	4	3	7
No	6	27	5	38
Yes	42=137/173*	123	30=113/173*	195
Other	5	19	8	32
Total	53	173	46	272

\* Adjusted for unequal sample size.

4.10 Amount of Subscription to Testing Service

Of the total of 401 farmers, 76% were willing to pay something to support a testing service.

There are 67,000 farmers in New Zealand who are either sheep, dairy, beef or mixed farmers. Details of the derivation of this estimate are shown in Appendix C. The figure derived excludes horticulture, timber etc., since no examples of this type of enterprise were included in the original sample to whom a questionnaire was sent.

It is assumed that the number of farmers who can be classed as commercial is 50,000 (present Federated Farmers' membership is 45,000 and the Federation suggests that with the full support of the whole industry it could exceed 55,000<sup>5</sup>).

#### 4.10.1 Estimate I

Totalling the sum of money which could be obtained from the 76% who were willing to pay something, the following is obtained : -

30%	(121)	were	willing	to	pay	\$ 2 - 4	\$242 - 484
24%	( 98)	"	"	"	"	\$ 4 - 8	\$392 - 784
17%	(70)	"	"	"	"	\$ 8 -12	\$560 - 840
1%	( 3)	"	"	"	"	\$12 -16	\$ 36 - 48
2%	( 7)	"	"	"	"	\$16 -20	\$112 - 140
1%	( 5)	"	"	"	"	\$20 +	\$ 50 - 50
							<u>\$1392 -2346</u>

Only a sample of 400 farmers was obtained from the survey: this equals  $\frac{1}{125}$  of the estimated 50,000 commercial farmers in New Zealand. On the basis of the figures above, \$174,000 - \$293,000 could possibly be available for an input evaluation service.

#### 4.10.2 Estimate II

Of the estimated 50,000 commercial farmers in New Zealand, assuming 25% will not support a farm input evaluation service, perhaps 37,000 farmers would be willing to subscribe \$4 per annum for such a service. This suggests that an amount of approximately \$150,000 could be available for an input evaluation service.

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5 The Voice of the N.Z. Farmer, 9. (A pamphlet produced by Federated Farmers of N.Z. (Inc.), Wellington.)

An amount of money in the vicinity of \$150,000 would permit an extremely comprehensive and sophisticated unit to be set up. It compares with the current Consumer Council budget of approximately \$130,000 (for the year ended 31 July 1966) <sup>6</sup>.

To see if farmers who were "Consumer" subscribers were willing to pay a larger sum to get a testing service started, a cross tabulation of "Consumer" subscribers and the amount farmers were willing to pay was carried out.

Table 4.30

Amount Willing to Pay in Relation to "Consumer" Subscribers

Amount farmers willing to pay	Subscriber to "Consumer"											
	No answer		No		Yes		Discontinued		Not familiar with Consumer Council		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	0	0	10	5	10	8	0	0	5	6	25	6
\$ 2 - 4	1	100	55	30	44	35	4	66	17	21	121	30
\$ 4 - 8	0	0	43	23	34	27	1	17	20	24	98	24
\$ 8 - 12	0	0	34	18	25	19	1	17	10	12	70	18
\$12 - 16	0	0	1	1	2	1	0	0	0	0	3	1
\$16 - 20	0	0	3	2	2	1	0	0	2	3	7	2
\$20 +	0	0	1	1	2	1	0	0	2	3	5	1
Other	0	0	37	20	10	8	0	0	25	31	72	18
Total	1	100	184	100	129	100	6	100	81	100	401	100

There would appear to be no difference between "Consumer" subscribers and non-subscribers in the amount they were willing to pay towards a testing service.

<sup>6</sup> N.Z. Consumer Council, "Annual Accounts for Year Ended 31 July 1966", Consumer, No. 30, 192 - 193, (December 1966).

It is possible that farmers who are used to paying for a particular service would be willing to pay for an input evaluation service. The following table shows the results obtained from cross tabulating these two questions : -

Table 4.31

Amount Willing to Pay in Relation to  
Membership in Trading Group

Amount farmers willing to pay	Membership in Trading Group											
	No answer		F.I.C. Trading Group		Similar trading group		Member of neither		Member of both		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No answer	2	67	3	4	2	3	15	6	3	23	25	6
\$ 2 - 4	1	33	19	28	18	30	82	32	1	8	121	30
\$ 4 - 8	0	0	21	32	14	24	59	23	4	30	98	25
\$ 8 - 12	0	0	12	18	13	22	42	16	3	23	70	17
\$12 - 16	0	0	0	0	1	2	2	1	0	0	3	1
\$16 - 20	0	0	2	3	0	0	4	1	1	8	7	2
\$20 +	0	0	0	0	0	0	5	2	0	0	5	1
Other	0	0	10	15	11	19	50	19	1	8	72	18
Total	3	100	67	100	59	100	259	100	13	100	401	100

There would appear to be little difference between the way members of a trading group and non-members of a trading group reacted to the amount of money they would pay to get a testing service in operation. Farmers used to paying for a service do not seem to be more willing to pay a greater annual subscription.

It would seem that mixed farmers were the most willing to pay the higher subscriptions.

Table 4.32

Amount Willing to Pay by Enterprise Type

Amount farmers willing to pay	Enterprise Type							
	Sheep		Dairy		Mixed		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	1	2	14	8	6	13	21	8
\$ 2 - 4	17	32	57	33	7	15	81	30
\$ 4 - 8	13	24	44	25	9	20	66	24
\$ 8 - 12	11	21	23	13	14	31	48	17
\$12 - 16	1	2	0	0	1	2	2	1
\$16 - 20	0	0	1	1	1	2	2	1
\$20 +	1	2	2	1	0	0	3	1
Other	9	17	32	19	8	17	49	18
Total	53	100	173	100	46	100	272	100

In the \$2 - 4 bracket, mixed farmers were the least willing to pay this amount ( $\chi^2 = 13.1$ , 2df:  $p < 0.5\%$ ). The \$4 - 8 bracket was not significant, but mixed farmers were the most willing to pay in the \$8 - 12 bracket ( $\chi^2 = 12.2$ , 2df:  $p < 0.5\%$ ).

The above results would seem to be a reflection of the mixed farmers' realisation that the type of farming inputs which they use would require substantial funds to enable comparative testing to be carried out.

#### 4.11 Farmers who had read Reports of the New Zealand Agricultural Engineering Institute

The reports from the New Zealand Agricultural Engineering Institute had not been read by 71% of the 401 farmers. However 29% had read the reports: two farmers gave no answer.

#### 4.12 The Use of the Reports

For 68% (271) of the 401 farmers this question was not applicable as they had not read the reports. Only 17% said the reports were of use to them, while 8% commented that the reports were not really applicable to their farming system: 3% had not seen the reports. The remaining 4% fell into the following categories:

No answer 5 farmers

Much machinery has not yet been tested 4 farmers

Reports of no use 2 farmers

Reports limited in results 2 farmers

Farmer already knew details 1 farmer

Other reasons why the reports were of no use appear in Appendix D.

The questions concerning farmers who had read the reports of the New Zealand Agricultural Engineering Institute and the usefulness of these reports to the farmer were cross tabulated : -

Table 4.33

#### Usefulness of Agricultural Engineering Reports in Relation to those who had read them

The Usefulness of Reports	Farmers who had read Ag. Engineering Institute Reports							
	No answer		No		Yes		Total	
	No.	%	No.	%	No.	%	No.	%
No answer	2	100	0	0	3	3	5	1
No	0	0	0	0	2	2	2	0.5
Yes	0	0	0	0	67	58	67	17
Farmer has not seen reports	0	0	12	4	0	0	12	3
N.A. to his farming system	0	0	0	0	33	28	33	8
N.A. since has not read reports	0	0	271	96	0	0	271	68
Other	0	0	0	0	11	9	11	2.5
Total	2	100	283	100	116	100	401	100

Of the farmers who had read the reports 58% (67) found them of some use: 28% found they were not applicable to their farming system. Only two farmers felt the reports were of no use.

It seems that the testing work of the New Zealand Agricultural Engineering Institute has been of use to farmers, but there would appear to be some difficulty in getting this information out to the farming community.

#### 4.13 Improvements in the Lincoln Scheme and its Reports

In answering this question 317 (79%) of the 401 farmers gave no answer: this included the 271 (68%) who had not read the reports. There were 8% (31) who felt there should be more advertising of reports and/or better circulation of them: 2% felt they did not know enough about the Lincoln scheme to comment on it, while 2% felt more tests should be carried out and a greater allocation of money made to the Institute. Other answers given to this question appear in Appendix D.

#### 4.14 Further Information Provided by Farmers

As was mentioned in Chapter 3 (p.35) the provision of space so that farmers can add their own comments increases the response rate. In the questionnaire, a blank page was provided for respondents to add their own comments or give any further ideas. A number of farmers made use of this page to add their own comments on various farming problems; only 89 farmers (22%) of the 401 farmers made any further comments on the need for a testing service or suggested goods or services which may need testing and had not been included in answer to the questionnaire. 78% of the 401 farmers did not provide any further information of relevance to the organisation of a farm input evaluation service.

Analysing the farmers who provided information on an enterprise type basis, it was found that sheep farmers offered more suggestions than did dairy and mixed farmers.

Table 4.34

The Provision of Further Information  
in Relation to Enterprise Type

	Sheep	Dairy	Mixed	Total
No.	55	25	38	118
%	47	21	32	100

The additional comments added by the farmers appear in Appendix E.

#### 4.15 Conclusion

The survey questions relating to the New Zealand Agricultural Engineering Institute reveal that a large number of farmers have no knowledge of the reports of the Institute and those who are aware of it have only a vague idea of its functions and terms of reference. It would seem that the Institute has been of no great assistance to the farmer in helping him decide on the quality of various farm inputs, apparently since the results of many of the tests have not been sought after and/or are not readily obtainable. It is to be expected that a unit which has limited funds and has only been in existence for a limited period will not have had the time to do a large number of tests and distribute the results of its findings to a large section of the farming community.

In view of the substantial impact of the Consumer Council on the farming community, it would seem appropriate for the New Zealand Agricultural Engineering Institute to affiliate in some way with the Consumer Council, which is already concerned with comparative testing. This would bring the finding of the Institute to a much wider farming audience without the need to create and promote its own extension medium, which is an expensive and time-consuming operation.

The survey does indicate a felt need by the majority of farmers for an input and service evaluation unit, for which most farmers (76%) were prepared to pay. A figure of between \$100,000 and \$150,000 per annum could be available to enable this input and service evaluation to be carried out. This assumes that a farmer's statement of intention would in fact be expressed in cash.

The various groups of items suggested as in need of testing (viz., tractors and farm machinery; agricultural chemicals, especially detergents; veterinary supplies, particularly drenches and dips; fencing, for both materials and design), indicate the problems and uncertainties generated by rapid technological change in the inputs supplied to farming. As an aid to decision-making a farm input evaluation service would seem to be a valuable source of information for the farmer, to supplement the contents of advertisements, the persuasive language of salesmen, and the experience of other farmers.

## CHAPTER 5

### THE ORGANISATION OF AGRICULTURAL SUPPLY INDUSTRIES IN NEW ZEALAND

#### 5.1 Introduction

Costs to the New Zealand farmers represent only one aspect of the farm income problem, which is concerned with the relationship between costs and prices. In New Zealand imported goods and services amount to 28%<sup>1</sup> of the total value of goods and services available, and even although certain factors which increase the cost of imports must add to New Zealand production costs, it appears that the factors responsible for internal costs are due mainly to the internal economic climate, which reflects Government policies and economic objectives. This then means that emphasis on full employment, protection and development of secondary industries, and the redistribution of national income, together with employers and employees decisions on wage rates, profit margins and improved productivity through the use of new techniques can influence farmers' costs quite markedly.

Import licensing is a characteristic feature of the New Zealand economy: it is associated with the objectives of full employment and the development of secondary industries and in addition it exerts some influence on profit margins and the possibility of improved industrial

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<sup>1</sup> Report of the Agricultural Development Conference (Wellington: Government Printer), 143.

productivity from the use of new technology. With import licensing it is possible for monopolistic or oligopolistic arrangements to exist. Under the Trade Practices Act (1958) investigations can be carried out to determine whether certain trade practices are contrary to the public interest. With the development of agricultural cooperative trading groups in New Zealand it would seem certain restrictive practices are being uncovered, thus making for a more competitive environment and the possibility of holding costs more stable.

In view of the need to keep farm incomes high to enable continued investment in farming, and with the greater scope for influencing costs rather than prices, some analysis of competitive structure and pricing policies is relevant.

## 5.2 Rulings under the Trade Practices Act (1958)

Under the Trade Practices Act (1958) a Trade Practices and Prices Commission was formed and an Examiner of Trade Practices and Prices appointed. The terms of reference of the Commission are to enquire into trade practices to establish whether any such practices are contrary to the public interest, and to make orders directing the amendment, discontinuance or prohibition of the repetition of any such practice which the Commission finds is contrary to the public interest. There is a right of appeal to the Trade Practices Appeal Authority.

In a large number of the enquiries conducted by the Trade Practices and Prices Commission the trade practice of collective agreements among traders for the pricing of goods, or the submission

of tenders for the supply of goods and services was held by the Commission to be contrary to the public interest.

Under the Trade Practices Act investigations of interest to the agricultural sector of the economy have been carried out into the following: -

- I. The Pricing and Marketing Procedure Associated with the Sale of Hormone Weedkiller Preparations <sup>2</sup>.
- II. The terms on which the East Coast Farmers' Fertiliser Co. Ltd. has agreed to sell phosphatic fertiliser to the Hawkes' Bay Trading Society Ltd., and the Gisborne East Coast Trading Society Ltd <sup>3</sup>.
- III. The terms on which the New Zealand Farmers' Fertiliser Co. Ltd has agreed to sell phosphatic fertiliser to the Waikato Farmers Traders' Society Ltd., and the Taranaki Rural Traders' Society Ltd <sup>4</sup>.
- IV. The terms on which Kempthorne Prosser and Co's New Zealand Drug Co.Ltd, has agreed to sell phosphatic fertiliser to the Farm Improvement Club Group Ltd, the Marlborough Farm Trading Society Ltd, the Ashburton Trading Society Ltd, and the North Canterbury Rural Cooperative Society Ltd <sup>5</sup>.
- V. The terms on which the Dominion Fertiliser Co.Ltd, has agreed to sell phosphatic fertiliser to the Otago Rural Trading Society Ltd., and the Rural Cooperative Society Ltd. <sup>6</sup>

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2 N.Z. Gazette, No. 13, 353, (March 18, 1965).

3 \_\_\_\_\_, No. 46, 1241, (Aug. 4, 1966).

4 \_\_\_\_\_, No. 53, 1442, (Sep. 12, 1966).

5 \_\_\_\_\_, No. 54, 1466, (Aug. 31, 1967).

6 Ibid.

In the case of the pricing and marketing of hormone weedkillers, the Trade Practices and Prices Commission found : -

- A. That an agreement or arrangement that uniform retail prices be charged for comparable hormone weedkiller preparations existed.
- B. That an agreement or arrangement existed for sales of hormone weedkiller preparations : -
  - (i) To grant to local bodies a discount of 15%.
  - (ii) To grant contractors and certain aerial operators a discount of 10%.
  - (iii) Not to grant any discount to Young Farmers' Clubs and (with the exception of sales by Boots the Chemists (N.Z.) Ltd) to Farm Improvement Clubs.
  - (iv) To tender for sales to local bodies only at prices and on terms agreed upon.

In the case of hormone weedkiller preparations an appeal was made to the Trade Practices Appeal Authority, but the appeal was disallowed.

It is possible that a similar type of monopolistic agreement or arrangement exists in the case of veterinary supplies and spare parts for farm machinery.

Even although Sartorius (Chap.2, P.15) suggests that the presence of concentration and of administered prices does not mean there is no competition in farm supply industries, it would seem that hormone weedkiller preparations provide a good example of reduced competition

arising from a collective agreement. The absence of price competition indicates that an oligopolistic industry is present, a feature of which is advertising. Millar suggests (Chap. 2, P.17) that advertising should exist to increase sales so that advertising costs are retrieved, and the price cut possible is given to the consumer. However in the case of hormone weedkiller preparations it would seem that even although these firms have carried out extensive advertising, because prices could not be cut the farmer had to pay more for hormone weedkiller.

The items from II to V and in B (iii) were concerned with the acceptance of orders from rural trading groups. This was a case of industrial organisations being unwilling to trade with trading groups and is an example of the possible pressure which may be exerted on these groups when they first commence operating. As rural trading groups begin to buy a greater range of inputs, it is likely that further restrictive trade practices will be uncovered.

The cases of fertilizer and hormone weedkiller cited above indicate that a cooperative acting in an imperfectly competitive structural situation can bring about price, output and efficiency dimensions comparable to pure competition as suggested by Knutson (Ch. 2., P.22). The development of rural trading groups in New Zealand has been of advantage not only to farmer members, but because of their pace-making role all farmers have benefited. This is consistent with Mather's observation (Chap.2, P.24) that cooperatives can have a salutary effect on business practices in their area.

### 5.3 The Effects of Import Licensing on the New Zealand Economy

There are marked disadvantages to having import licensing over long periods of time. A consideration of a few of the effects import licensing may have on the economy will show these disadvantages : -

- I. As stocks of imported materials are used up spasmodic unemployment may appear due to "bottlenecks" in the economy <sup>7</sup>.
- II. With import licensing opportunities are available for strengthening the monopoly elements within the economy, since the basis of allocation of import licenses cannot be adjusted to a changed situation rapidly enough <sup>8</sup>.
- III. The protection given by import control will tend to increase costs and lower the competitive position of the export industries. Import licensing need not reduce the potential demand for imports, as investment expenditure will be stimulated and there will be increased machinery imports <sup>9</sup>.

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7 E. Lundberg and M.Hill, "Australia's Long Term Balance of Payments Problems", Econ. Rec., 34 : 42, (1956).

8 Ibid., 43.

9 Ibid.

IV. Import licensing is inflationary, whereas inflation may be partly, wholly, or more than off-set when increased tariffs are applied. The effect will depend on the reaction of the home demand for imports, upon the rise in price of the imports and upon the extent to which the extra customs revenue is spent by the Government <sup>10</sup>.

It has been estimated that the domestic price level in New Zealand rose by 60% between 1949 and 1959 due to a continual process of inflation caused by excessive wage costs, by tendencies to overspend, and because of import licensing <sup>11</sup>.

An argument often advanced is that import licensing raises prices less than they would be raised if tariffs were used. The real difference between tariffs and import licensing lies in the fact that with a tariff the Government gets the benefit of the increased price to the consumer, so the Government can either reduce taxation or offer incentive payments to exporters. However with import licensing the overseas seller receives a higher price, or margins are absorbed in the marketing chain. In order to spread the availability of the reduced supply of imported goods over the entire year, it is essential to raise retail prices so as to reduce demand <sup>12</sup>.

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10 W.M. Corden, "Import Restrictions and Tariffs: A New Look at Australian Policy", Econ. Rec., 34: 332 (1958).

11 C.A. Blyth, Economic Growth 1950-60 (Research Paper No. 1, N.Z. Institute of Economic Research: Wellington, N.Z.), 9.

12 W. Candler, "Incentives for Agricultural Production", Proceedings of the Ruakura Farmers' Conference 1964 (Hamilton, N.Z.) 132 - 133.

- V. An economy which has full employment with a long term policy of import licensing will have low productivity because it will try to do too many things at once. Prices can be changed according to internal costs with little attention being paid to potential external competition: relatively small markets, short runs of production, and inelastic but expanding demand will create the type of industrial growth that ignores the concepts of comparative costs and the advantages of the New Zealand economy in the international division of labour. The disregard of these economic principles means the rise in real national income will be much lower than it otherwise would have been <sup>13</sup>.
- VI. The allocation of import licenses on the basis of a previous year's imports means that the rate at which New Zealand can turn to an alternative source of import supply is greatly slowed down <sup>14</sup>.
- VII. Import licensing is inequitable since obtaining a license requires an administrative decision about the particular industry or import. The profitability of a proposal is not necessarily the determinant of the success of the application <sup>15</sup>.

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13 Lundberg and Hill, op. cit., 43.

14 Candler, op. cit., 131.

15 Ibid.

VIII. Import licensing raises the c.i.f. (landed) value of imports if the foreign exporter can obtain for himself some of the monopoly profits. By appropriating some of the profit there is a tendency for the terms of trade to worsen. In contrast tariffs are more likely to cause the terms of trade to improve <sup>16</sup>.

In New Zealand it seems unlikely that import licensing would have a noticeable effect on the terms of trade because : -

- (i) Licenses are issued on a global basis and there is probably not much chance of foreigners appropriating monopoly profits.
- (ii) New Zealand is too small to have any effect on world price.

Candler <sup>17</sup> suggests that under import licensing some industries in New Zealand get more than 80% protection. He proposes that there be an upper limit to the protection afforded any industries by either tariffs or import licensing (e.g. 60%). A bounty could be used to give added protection to the industry. Alternatively licenses could be auctioned to the highest bidder.

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<sup>16</sup> Gorden, op.cit., 332.

<sup>17</sup> Candler, op.cit., 137, 140.

#### 5.4 Import Licensing and Farm Inputs

To ensure that New Zealand's overseas payments could be made and sufficient funds be available for essential imports, there have been import control and export licence regulations in existence since December 1938.

With the introduction of the Import Control Regulations of 1938 the import of goods was prohibited except under a licence or exemption. The Import Licensing Control Regulations 1964 (which were related to the authority of the Customs Act 1913) consolidated and amended the 1938 Import Control Regulations and their amendments. Under the Import Licensing Control Regulations 1964, importation into New Zealand of any goods is prohibited except by a written licence, an exemption, or a written permit granted by the Minister of Customs.

The Import Control Regulations are administered through Import Licensing Schedules. Since 1962 there has been a general easing of the Import Control Regulations. The Schedule for 1962 was issued in March 1962 and represented an increase in imports compared to the earlier period of 1962. This schedule was based on the new Customs Tariff which came into force on 1 July 1962.

During the 1963-64 import licensing period commercial and industrial growth expanded rapidly and additional funds of slightly more than \$16m. were made available for further imports, including agricultural tractors.

In the 1965-66 Import Licensing Schedule 90 items, representing imports then valued at \$90m. were exempted from licensing. With this increase about one-third of New Zealand's import trade was free of licensing. The items which were exempted consisted of the following -

- (i) certain raw materials
- (ii) certain consumer goods
- (iii) heavy duty trucks
- (iv) various types of agricultural equipment,  
e.g. tractors, combine harvesters, corn  
pickers, pick-up balers, separators and  
certain spare parts.

Overall, the 1966-67 Schedule was the second highest on record, being exceeded only by that of 1965-66. The 1967-68 Import Licensing Schedule provided for further general reductions in the allocation for licensed imports; allocations were in most cases reduced by 20%.

The 1967-68 Schedule contained the following categories of items : -

- (i) Basic items where the Schedule provides a percentage allocation based either on the amount of a previous period's licenses or on the amount of actual imports made during a previous period.
- (ii) "C" items for which applications for licenses would be considered individually. There was an initial allocation for some "C" items and licenses would have been granted according to the percentage indicated.
- (iii) "D" items for which applications for licenses would be considered only in the most exceptional circumstances.

- (iv) "E" items which are exempt from licensing.
- (v) Applications for items marked  $\Delta$  in the Schedule and other applications involving materials and equipment for industry, together with applications for goods of a similar kind to those manufactured in New Zealand in quantity, would be referred to the Department of Industries and Commerce for investigation and recommendation.

#### 5.5 Import Licensing of Specific Agricultural Inputs

An examination was made of the Import Licensing Schedule for the 1967-68 Licensing Period <sup>18</sup> to try to determine the likelihood of local protection of industry. The Import Licensing Schedule was read in conjunction with the Customs Tariff of New Zealand 1962 <sup>19</sup>.

##### 5.5.1 Agricultural Tractors

These are not subject to import licensing at all: any restriction on imports for agricultural tractors is likely to be for foreign-exchange saving reasons rather than protection purposes, as no tractors are manufactured in New Zealand.

The Schedule which was examined gives a list of 130 different types of tractors which are approved for importation. In general, the tractors approved for importation are those types of tractors approved for agricultural use and follows the 1963-64 Agricultural Development

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18 N.Z. Customs Dept., Import Licensing Schedule: 1967-68 Licensing Period (Wellington: Government Printer) xxxi, 23 - 74.

19 N.Z. Customs Dept., Customs Tariff of N.Z. 1962 (Wellington: Government Printer) 110 - 227.

Conference recommendation that import licensing on farm machinery be removed, if the machinery was not made in New Zealand. The tariff on agricultural tractors ranges from none to 10%.

### 5.5.2 Agricultural Machinery

On examination of the 1967-68 Licensing Schedule it was found that the following items were exempt from licensing; the tariff ruling appears in brackets after each item and includes the range from the lowest to the highest : -

Cream separators (free), discs (free), some machinery parts (20-55%), combine harvester-threshers (free), pick-up balers (free), corn pickers (not available), sickle-bar mowers (free).

The following items were allocated 100% of their 1966 licences: -  
 Disc ploughs (10-40%), ploughs (10-40%), cultivators (10-40%), rotary hoes (10-40%), rotary tillers (10-40%), harrows (10-40%), seed drills (20-50%), seed or fertiliser sowers or distributors, combined or separate (20-50%), lime-spreaders (20-50%), potato planters (20-50%), milking machines (free), milking machine parts, excluding rubber parts (free - 32½%). All of these must be referred to the Department of Industries and Commerce for investigation.  
 Parts of ploughs, other than plough shares (free). This last item does not need to be referred to the Department of Industries and Commerce for investigation.

Applications would be considered only in exceptional circumstances for the following : -

Vacuum pumps suited for use with milking machines (not available), plough shares (free), forage harvesters with cutting width not exceeding 70" (free - 20%), buck rakes (not available), finger-wheel type side-delivery rakes (20%), power-operated rotary-type mowers (15-55%), weed and scrub-cutting mowers ( $27\frac{1}{2}$  - 65%).

Applications for licenses would be considered individually in the following cases:

Potato diggers (20%), hay rakes (20%), swath turners (20%), side-delivery rakes (20%), hay and straw presses (free), rotary-type mowers having cutting blades greater than 33" in length ( $27\frac{1}{2}$  - 65%). These were all required to be referred to the Department of Industries and Commerce for investigation.

An allocation of 90% of 1966 licences was provided for in the following items:

Reapers, binders, threshers and harvesters (other than combine harvester-threshers, forage harvesters with cutting width not exceeding 70", and tobacco harvesters) (not available), mowers other than those mentioned previously (15-55%), mechanical clippers for sheep shearing and horse clipping, and parts (free - 10%).

### 5.5.3 Fencing Materials

The following fencing material applications would be considered only in exceptional circumstances: -

Metal fencing posts, standards and droppers (not available), wire-strainers (free- $12\frac{1}{2}$ %), twisted hoop or single flat wire, barbed or not, and loosely twisted double wire, of kinds used for fencing, of iron or steel (free -  $12\frac{1}{2}$ %).

A restriction of 80% of the imports of the same goods under 1966 licences applied to  $12\frac{1}{2}$  gauge high tensile fencing wire and galvanized wire Type B (not available).

Applications for licences for baling wire (not available), barbing wire (free -  $12\frac{1}{2}$ %), fencing wire and nail wire (not available), would be considered individually and also referred to the Department of Industries and Commerce for investigation.

#### 5.5.4 Agricultural Chemicals

Insecticides and fungicides specially prepared for use in the preservation of timber were exempt from licensing (not available), while sheep dip, insecticides and fungicides for agricultural purposes, etc., put up in packings for retail sale and weedkillers put up in packings for retail sale were only 80% of the 1966 licences (free -  $32\frac{1}{2}$ %).

Insecticides and fungicides for agricultural purposes, etc., packed otherwise than for sale by retail (excluding insecticides and fungicides especially prepared for use in timber preservation) and weedkillers were reduced to 90% of their 1966 licences and also need to be referred to the Department of Industries and Commerce for investigation ( $12\frac{1}{2}$ % -  $22\frac{1}{2}$ %).

#### 5.5.5 Milking Machine Parts

These would be considered in exceptional circumstances: the tariff ranges from being free to 32%.

### 5.5.6 Summary

It would seem from this discussion of import licensing that certain types of agricultural machinery may be being protected. Such items as certain machinery parts, disc ploughs, ploughs, cultivators, rotary hoes and tillers, harrows, seed drills, seed or fertiliser distributors, lime spreaders, potato planters and mowers may be costing the New Zealand farmer more than the item costs overseas. This conclusion fits in with the observations of farm machinery distributors (Chap. 2, P.19) that small implement manufacture is protected.

It appears that vacuum pumps for milking machines, plough shares, forage harvesters, finger-wheel type side-delivery rakes and power-operated rotary-type mowers, wire strainers, twisted loop or single flat wire, barbed or not, and loosely twisted double wire of kinds used for fencing are quite highly protected, as applications for these are considered only in exceptional cases.

It is possible that potato diggers, hay rakes, swath turners, side-delivery rakes, hay and straw presses and rotary-type mowers having cutting blades greater than 33" in length, baling wire, barbing wire, fencing wire and nail-wire are all very highly protected.

The agricultural chemical industry may be protected to some extent: most items in this category seem to have a tariff in the range of being free to 20%.

Milking machine rubberware may also be highly protected; even although there was no cut in import licence allocation in the 1967-68 period, there is a relatively high tariff now in existence.

It is difficult to compare the price of imported items and the retail price in the country of origin and so get some idea of the likely extent of protection. The 1963-64 Agricultural Development Conference<sup>20</sup> endeavoured to account for the disparities between United Kingdom and New Zealand user prices and found the margin was substantial on some individual items, but did not know whether these margins were the result of policies followed by New Zealand distributors or by overseas manufacturers.

#### 5.6 The Agricultural Development Conference and Protection of Local Industry

The Farm Costs Working Party of the Agricultural Development Conference<sup>21</sup> in discussing protection by tariffs and import licensing, made the following recommendations :

- I. That import licensing be replaced as far as possible by the tariff as a protective measure.
- II. That where tariff protection is deemed necessary or where special circumstances require maintenance of import licensing, the protection offered should not exceed a reasonable level.
- III. That a full enquiry be undertaken into the local wool-pack industry. Such an enquiry should include its strategic significance, its regional, social and economic implications, and the availability of alternative raw materials.

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20 Report of the Agricultural Development Conference, op.cit., 157 - 158.

21 Ibid., 169.

- IV. That import licensing of farm machinery or licensing of other goods used predominantly by farmers for productive purposes should be removed if the machinery or goods are not made in New Zealand.
- V. That where it is deemed necessary to institute or maintain protection of local manufacturers of farm inputs, there should be reasonable prospects that they will be capable of economic production, and that they will keep the prices, quality and suitability of their products competitive with imports.

As a result of these recommendations many types of farm machinery and equipment were exempted from import licensing during 1965. However little else has been done to implement the recommendations of the Conference, and it would appear that there is still some measure of protection being afforded certain New Zealand farm inputs, e.g. milking machine rubber-ware and small implements.

The protection afforded certain farm supply industries in that overseas firms cannot enter the New Zealand market because of import licensing means that on Bain's ease of entry criterion (Chap. 2, p.16), that the monopoly (or oligopoly) is absolute. Milking rubberware provides an example: from the analysis of the Import Licensing Schedule carried out and the New Zealand Industrial Production Statistics 1965-66<sup>22</sup>

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22 N.Z. Dept. of Statistics, N.Z. Industrial Production 1965-66 (Wellington: Government Printer), 183.

it seems that this particular input is produced by a highly oligopolistic industry <sup>23</sup>.

Looking at the situation in New Zealand in view of Rhode's analysis (Chap. 2, p.18) the non-atomistic nature of the agricultural chemical and farm machinery industries has not promoted improved product design and aggressive selling. Farm supply firms have not found it necessary to invest in research as there is no potential competition and possession of an absolute monopoly presents no marketing problems. Since firms either possess the whole market or share it with a few other firms who hold import licences, there is little need to see that their product is equivalent in price or quality to similar overseas products before it is placed on the market. It appears to the author that because of import licensing, some evaluation of price-quality alternatives is necessary.

### 5.7 Conclusion

Any firm conclusions which may be drawn from the preceding discussion would be unwarranted as there are many factors to be taken into consideration in analysing the effects of import licensing and tariffs on the cost of farm inputs.

The Agricultural Development Conference <sup>24</sup> in looking at the disparity between the United Kingdom and New Zealand user prices for farm machinery found about one-quarter of the differential in the prices, or 9% of the total cost between that paid by United Kingdom and New Zealand farmers was left unexplained. The Farm Costs Working

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23 Evidence for this view is obtained from the fact that individual statistics for milking rubberware were not available for publication, indicating to the author that there are only a few firms (2 - 4) present in this industry.

24 Report of the Agricultural Development Conference, op.cit., 158.

Party concluded that some part of this difference was explained by slightly lower distributors' margins in the United Kingdom, with the balance presumed to be due to differences in ex-factory selling prices and export prices in the United Kingdom. On Sartorius' criterion (Chap. 2, p.15) it would seem that there is workable competition present in the farm machinery market, since this industry appears to be setting approximately the lowest possible cost for the goods it is producing and distributing.

The Conference felt that the way to overcome the problem of knowing whether the margin on some individual items was due to the policies followed by New Zealand distributors or by overseas manufacturers was to promote more competition in the farm machinery field. It was considered by the Farm Costs Working Party that this would be best achieved by the abolition of import licensing on farm machinery not made in New Zealand.

In view of the protection afforded by import licensing with little need to see if a product is equivalent in price and quality to similar products, it would seem that some evaluation of price-quality alternatives both within New Zealand and between New Zealand and other countries is needed. Even although legislation and Standards are in existence, the "highest-quality for dollar value" input may not be being provided for New Zealand farmers.

With the recent development of cooperative supply organisations, it is likely that there will be a greater amount of competition amongst the various farm supply firms. The recent rulings of the Trade Practices and Prices Commission in regard to fertiliser and hormone weedkillers

is an example of the difficulty cooperative supply groups may have in getting into the farm supply market. It seems supply cooperatives throughout the world have had difficulty in taking over any of the distribution of farm machinery, since the farm machinery industry has its own well-established distribution channels.

Farm supply cooperatives may be more successful in entering fields which are not associated with heavy industry, viz., drenches, vaccines, weedkillers and so improve the market for these particular inputs. There would appear to be no difficulties in entering the market for drenches and vaccines judging by the cases which have appeared before the Trade Practices and Prices Commission.

It is accepted theory that a cooperative entering a market tends to make the market more competitive <sup>25</sup>. This could be a quick and easy way of ensuring that mark-ups on certain goods are kept as low as possible, and any possible restrictive trade practices could be referred to the Trade Practices and Prices Commission for consideration.

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25 R.D. Knutson, "Cooperatives and the Competitive Ideal", J.Fm. Econ., 48: 113, (Aug. 1966).

## CHAPTER 6

### S U M M A R Y   A N D   S U G G E S T I O N S

#### 6.1 Introduction

Given the trend of increasing dependence of primary industry on secondary industry for its inputs, a farmer will experience greater difficulty in making the correct decision on the most appropriate inputs to purchase to obtain a least cost combination. When many of the inputs he must purchase consist of slightly differentiated brands, increasingly sophisticated in design and with a wide price range, then an informed decision will achieve significant economic gains. It appears then that some extension work is required to assist the farmer in his input selection.

Technical extension services were originally provided by Government, but in recent years these extension services have been supplemented by the development of the Farm Improvement Club Movement on a cooperative basis.

It would seem that the one sure way of ensuring that a particular industry will commence policing itself, is for some of the users of its particular product or service to begin to unite to attain self-protection. This form of cooperative action is well shown in the electrification of the rural areas of the United States. It was only when farmers had formed cooperatives to undertake this electrification that companies entered this field.

In New Zealand cooperative bargaining to obtain discounts and other concessions is already being used by Farm Improvement Clubs, Cooperative Dairy Companies and Producer Boards (e.g. in bulk buying and in negotiations on freight rates). Federated Farmers appears to be both a bargaining cooperative in its enquiries into the cost of certain farm inputs (e.g. polythene) and it has also expressed some interest in farm input evaluation in its suggestions that the Consumer Council do some comparative tests on certain farm inputs, e.g. stock remedies, farm machinery.

## 6.2 Possible Organisations to Develop a Farm Input Evaluation

### Service

The farmer buys as an individual and in small quantities, so it is reasonable that he be offered some guidance in selecting the most productive input to combine with the other inputs on his particular farm. To enable the farmer to select the most productive input from a range of inputs it is necessary to have some form of comparative testing service available to specify a best buy per \$ spent.

Legislation is in existence which prevents the farmer from being sold inferior goods, e.g. the Animal Remedies Act (1967), the Stock Foods Act (1946), and the Agricultural Chemicals Act (1959), but this legislation merely establishes a minimum requirement that selected inputs must attain.

### 6.2.1 Government Departments

It would seem that the officers of the Department of Agriculture in their extension activities make recommendations of particular brands or makes of inputs on an unofficial basis. The extension officer is in a suitable position to make such recommendations because he mixes with a large number of farmers in a district and comes to know the brands or makes of inputs which cause the least trouble.

Accepted Government policy prevents a Government Department from publicly recommending a brand or make of input. The Consumer Council has indicated <sup>1</sup> that if Government Departments were willing to release any test information they had on farm inputs, the Council would be willing to use the results of these tests to recommend certain brands to the farmer. Enquiries by the author suggest that Government Departments would not be willing to release the results of any tests they had carried out for use by the Consumer Council. However it is highly probable that Government Departments would be willing to do certain tests under the direction of the Consumer Council, the Consumer Council then using the results of these tests to recommend a "best buy".

### 6.2.2 The New Zealand Agricultural Engineering Institute

Already there is in existence in New Zealand an Agricultural Engineering Institute concerned with carrying out standardised tests on farm machinery and some other farm inputs. Recently the Institute has become more interested in comparative testing.

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1 Personal communication with N.Z. Consumer Council, Wellington, N.Z.

The association of the New Zealand Agricultural Engineering Institute with the Department of Agriculture means that there is already in existence a report network for complaints and a distribution network for results. The Institute, while being financed by annual grants from the Department of Agriculture, is in fact a University-administered organisation. It is thus in a position to make mention of brand-names in its reports. Alternatively the Institute could be a testing authority and leave the Consumer Council to draw conclusions and mention particular brand names.

The scheme devised by the National Institute of Agricultural Engineering in the United Kingdom to enable the development of a "Reports for Users" scheme met with failure. To enable a similar type of scheme to be set in operation in New Zealand a suitable amount of money would need to be made available continuously to enable long-term tests to be carried out. The New Zealand Agricultural Engineering Institute has indicated a willingness to participate in comparative testing if a suitable and continuous supply of finance is available to it.

### 6.2.3 Consumer Council

It would seem from the survey discussed in Chapter 4 that the Consumer Council would be the most appropriate testing organisation since it is already associated with comparative testing, and a large number of farmers are familiar with the services offered by the Council (78% of the farmers contacted in the survey). In addition, 32% of the farmers were "Consumer" subscribers and the Council was suggested as a possible testing organisation by approximately half the farmers in the survey.

The Consumer Council is concerned with comparative testing for the entire consuming community and cannot limit its activities to the farming sector, although from time to time it has considered tests which would be directly applicable to the farming community. If sufficient finance was available the Council has indicated a desire to carry out comparative tests on farm inputs. In view of the effect consumer associations have had on the quality of certain household inputs <sup>2</sup> it would seem that the Consumer Council is a useful organisation to provide not only an impartial guide for farmers, but also to help improve the quality of all inputs offered to farmers.

#### 6.2.4 Federated Farmers

It would appear that Federated Farmers is an appropriate organisation to carry out a farm input evaluation service because approximately 70% of farmers are subscribing members and it has already suggested that comparative testing of some farm inputs be carried out <sup>3</sup>.

However it seems that even although there is a large subscribing membership, active membership may be as low as 10%, and if the subscription was increased to finance an input evaluation service, subscriptions would probably drop substantially below 70%, thus making an extensive testing service infeasible and defeating the very basis of Federated Farmers, i.e. to speak for the overwhelming majority of farmers.

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2 C. Fulop, Competition for Consumers (Institute of Economic Affairs, London: Deutsch, 1964), 225.

3 Straight Furrow, 22 : 27, (July 18, 1962).  
22 : 31, (Aug. 22, 1962).  
22 : 25, (Oct. 3, 1962).  
23 : 15, (May 15, 1963).  
24 : 18, (May 20, 1964).

### 6.2.5 Agricultural Cooperative Trading Companies

At the present time agricultural cooperative trading companies (or rural trading groups) are making rapid progress in the supplying of inputs to farmers. However while being a most vibrant farming organisation, the agricultural cooperative supply movement is not yet sufficiently large, nor does it contain enough farmers to set up a farm input evaluation service for New Zealand farmers.

Agricultural cooperative trading companies can do a good deal to help in the farm input "consumer movement" by practising selective buying. At the present time, cooperative trading companies are not sufficiently large to practise selective buying. However on the recommendations of cooperative supply group members it could be possible for a trading company to purchase one particular input brand rather than another.

Co-ordination of the preferences of members of agricultural cooperative trading companies on a national basis could be a useful basis for registering approval or disapproval of a particular brand of input. The problem with an organisation of this nature is that any opinion expressed may tend to be biased, since the opinions expressed represent only one particular group of farmers. An organisation which would process a large number of farmers' opinions on a national basis could be a transitional type of organisation between the present stage with little available knowledge on farm inputs, and a full scale input evaluation service.

At the local level, Farm Improvement Clubs, which usually belong to the agricultural cooperative trading company movement, could organise a useful service by providing lists of dealers, machinery repair groups etc., which offer the best services to the farming community. This service could be organised relatively easily by carrying out a survey amongst all the farmer members in the district. A guide to the services available in a district would be of great assistance to the farmers as they could then select a particular dealer etc., without going through the time consuming process of "shopping around".

### 6.3 The Most Appropriate Organisation to do Farm Input Testing

The author feels that the Consumer Council in association with the New Zealand Agricultural Engineering Institute could carry out comparative tests on certain farm inputs. Use could be made of certain Government Departments (Department of Agriculture and Department of Scientific and Industrial Research), Universities and chemical analysis laboratories to carry out tests, as is now the policy of the Consumer Council. It would then be possible for the Consumer Council to use the results of these tests to make recommendations as to the "best buy".

The Consumer Council, in association with the Farm Improvement Club Movement, could make recommendations as to the "best buy" on the basis of the test results, using the Consumer Council with its experience of comparative testing, and the Farm Improvement Club Movement with its knowledge of farming and the conditions under which the particular input is to be used. The Farm Improvement Club Movement would seem to be the

most appropriate farming organisation to work with the Consumer Council, because it appears to the author to be the only farming organisation in existence in New Zealand that has extensive contact with farmers and is independent of Government.

#### 6.4 Financing a Farm Input Evaluation Service

The author feels that a Government grant is necessary to finance a farm input evaluation service, possibly supplemented by grants made by the Producer Boards, as is the case with the Dairy Research Institute and the Meat and Wool Board's Economic Service. Even although 71% of the farmers contacted in the present survey were willing to pay for a farm input evaluation service there is the problem of ensuring that these farmers continue to be subscribing members to the service regardless of the economic situation of the farming industry. A grant made available annually by the Government would enable continued input testing to be carried out, with farmers having the option of obtaining the results by buying the magazine produced by the testing organisation. Income from magazine sales could be used to increase the number and range of the tests performed.

A further alternative, in which the scheme was compulsory for all farmers would be via a levy on produce, but it is extremely difficult to obtain general farmer approval for this course of action and the Government would be unwilling to introduce a compulsory levy without such general support. The author feels a Government grant is justified because of the savings which would be realised for the entire economy if a farm input evaluation service were successfully instigated.

The total value of inputs moving from secondary industry into primary industry is approximately \$60m. annually, which is a large investment for New Zealand (just less than one half of the cost of the Manapouri power project of \$132m).

From Chapter 1 it would seem that in the vicinity of \$34m. ( of which \$14m. represents wages) is invested annually in fencing. If a cheaper fencing design or cheaper fencing materials were used it would seem that some savings in cost could be realised. In addition to possible savings in cost there are also likely to be labour-saving economies, both from the use of less labour and from the combination of labour with a high quality input, thus reducing maintenance and replacement costs. This additional labour could be re-employed in other positions in the agricultural sector or be made available to other sectors of the economy.

Apart from a more critical and informed decision it would seem to the author that if the farm operator had the guidance available from a farm input evaluation service, he would spend less time in deciding whether or not to buy a particular brand of input and would have more time available to think about other problems concerning his farm business. In addition, the cost of certain inputs could be reduced as there will be less need for advertising and on-farm salesmen, the farmer having an impartial guide available directly from the farm input evaluation service.

The possibility of saving several million dollars directly from the instigation of a farm input evaluation service, as well as the efficiencies resulting from better informed decision making

by farm operators and the lower operating costs of farm supply businesses, has lead the author to suggest that a Government grant of \$50,000 (the initial grant to the New Zealand Agricultural Engineering Institute was \$30,000) be made available annually to the Consumer Council to enable it to carry out the comparative testing of farm inputs.

#### 6.5 The Distribution of Testing Service Information

The author suggests the distribution of testing service information in a magazine form for those farmers who want to become subscribing members. By this means only those farmers who require this particular type of information need subscribe to the service.

To enable district variations in the use of particular inputs to be accounted for, it would be useful to discuss reports on testing in discussion groups so that the reasons for the particular input being commended or condemned are known to the farmers. The suitability of the particular input to the particular district could then be discussed. Discussion developed in this manner would tend to make farmers more conscious of what they were buying.

#### 6.6 Recommendations on Veterinary Supplies

There is evidence of some dissatisfaction with veterinary supplies because of the number of farmers who felt there was a need for tests to be carried out on dips, drenches and general veterinary supplies (see Chapter 4). The Animal Remedies Act (1967) appears to be fulfilling its

purpose <sup>4</sup> and with the intensive non-price competition most apparent in the market for a large number of veterinary supplies, it would seem any rapid deterioration in product value would be detected and business would suffer as a result. Labelling (see Chapter 4) appears to be adequate in indicating the contents and possible dangers of preparations.

Difficulties associated with the use of veterinary supplies seem to occur when critical proportions of the preparation have to be considered. Problems also arise because of the greater specificity of the drugs now on the market and wrong diagnoses by farmers. It would appear to the author that there is an extension problem associated with the use of veterinary supplies by farmers, but this problem is beyond the scope of the present study.

#### 6.7 Recommendations on Fencing Supplies

Steel fencing supplies (both fencing wire and wire posts) are stated to be made from high grade ('A') galvanized wire <sup>5</sup>, but staples etc., may be manufactured from lower quality materials. Dissatisfaction with fencing seems mainly associated with the suitability of different types of fencing and the possible cost reductions which could be obtained from different forms of fencing <sup>6, 7, 8</sup>.

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4 Personal communication with Veterinary School, Massey University, Palmerston North, N.Z.

5 Personal communication with Eclipse Wire (Palmerston North) Ltd, Palmerston North, N.Z.

6 H.C.H. Pearse and K.R. Humphries, "Reducing Fencing Costs on Hill Country", Massey Sheepfarming Annual 1966 (Palmerston North, N.Z.) 225 - 233.

7 H.C.H. Pearse, "Fencing Efficiency", Farm Forestry, 8: 3 - 24, (1966).

8 1967 "Soil-Con" Fencing: the fence with a future (A leaflet produced by the Ministry of Works, Palmerston North, N.Z.)

The author suggests that the proposed farm input evaluation service look into the various designs of staples available on the market and also the quality of wire used in staple manufacture.

Different fencing designs and types of fencing material (8 gauge v  $12\frac{1}{2}$  gauge wire, concrete v wooden posts) could be used in trials to investigate such factors as strength of fence, length of life, optimum distance between posts, the stock holding capacity of the fence etc. Tests could also be carried out to find the most efficient, least-cost fence for different farm types, viz., hill-country sheep, low-land fat lamb, mixed sheep and cropping, and dairy farms. These tests could be just an extension of the tests of fencing at present being carried out by the New Zealand Agricultural Engineering Institute.

#### 6.8 Recommendations on Agricultural Machinery

At the present time the New Zealand Agricultural Engineering Institute is beginning a number of testing projects, but these projects involve standardised tests rather than comparative tests. Standardised tests involve putting an input through a set test procedure with the performance of the input for each aspect of the test being noted in technical terms: results appear usually in the absolute terms, e.g. 40 brake horse-power. In contrast, with comparative tests an input is put through a test procedure and performance for each aspect of the test is compared with the performance of other brands of that input for that particular test: results appear often in relative terms, e.g. good, fair, poor.

It would seem that in association with the comparative test approach of the Consumer Council, comparative tests could be carried out on agricultural machinery by the New Zealand Agricultural Engineering Institute. The author suggests that a farm input evaluation service look into those aspects of machinery design and manufacture which can cause man-hours to be wasted due to machinery stoppages. Standardised tests are the most appropriate tests for discovering engineering defects. However tests to compare machines on such things as ease of hitching to the tractor and manoeuvrability of the machine, ease of operation of the machine (e.g. dust problems), ease of fitting new parts, ease in servicing the machine, the sensitivity and ease of adjustment control and the layout of the instruction booklet could be undertaken. A postal questionnaire could also be used to ascertain user experience on various points, the user classifying performance aspects as 'good', 'fairly good', 'fair' or 'poor'.

It must be remembered that agricultural machinery is used under a variety of conditions in New Zealand. However, the author feels that the relevance of a Consumer Council/Agricultural Engineering Institute report to a particular district could well be discussed at discussion groups and similar farmer meetings.

The most productive machinery for a particular farm is a matter for the farmer to decide. The information provided by a farm input evaluation service would be just another, but an impartial source of information for the farmer.

It is difficult to ascertain from the Import Licensing Schedule and the Customs Tariff of New Zealand the extent of import licensing and tariff protection which exists in New Zealand. However it appears to the author that there is a good deal of protection of small implement manufacture in New Zealand.

### 6.9 Recommendations on General Farm Supplies

The author feels that the items suggested by farmers in Chapter 4 as in need of testing could be tested by the Consumer Council section of the Consumer Council/New Zealand Agricultural Engineering Institute partnership. Such inputs as stock licks and foods could be chemically analysed to see if the contents were as indicated on the label and possibly a recommendation could be made on the value of the particular preparation for farmers in some particular areas.

An input such as milking machine rubberware could be tested for length of life, perishability and ability to withstand various milking machinery cleansers.

The author considers that a large number of farm supplies could be tested relatively easily in a few simple tests carried out with the cooperation of farmers, e.g. teat salves, tail-tags. Tests on this type of input could be a means of proving the value of a farm input evaluation service to the farmer.

### 6.10 Summary

The author suggests that because of the possible savings both in labour and in overseas funds which could be realised from having a farm input evaluation service, that a Government grant of \$50,000 be made to the Consumer Council to enable it to extend its activities into the field of farm input evaluation.

Both the Consumer Council and the New Zealand Agricultural Engineering Institute are keen to begin comparative testing of farm inputs if sufficient finance is available. The New Zealand Agricultural

Engineering Institute in association with Government Departments and Universities could conduct a large range and number of tests. The Consumer Council, in association with representatives from the Farm Improvement Club Movement, could take the responsibility of using the test results to recommend a "best buy" for the farmer.

The author considers that a farm input evaluation service should be initiated on the basis of a Government grant as was the case for both the Consumer Council and the New Zealand Agricultural Engineering Institute. These two organisations have both become independent organisations with some subscribing members, but are completely free from any Government influence and largely immune from pressure from manufacturing organisations.

The author suggests that Farm Improvement Clubs or local rural trading groups begin to look more toward the particular services offered in their district with a view to giving farmers a guide as to the best available. This suggestion applies particularly to analyses of services such as those offered by machinery salesmen, shearing contractors, and aerial and truck topdressing companies. Some assessment of these services would enable the farmer to at least know of alternatives available in his district and would be a force making for more effective competition.

The author feels there is an extension problem in regard to the use of veterinary supplies by farmers because the drugs now on the market are more specific than formerly, and it is also necessary to consider the correct proportions to be used. Problems may be further compounded if the farmer makes an incorrect diagnosis.

The quality of fencing supplies, apart from staples, appears to be adequate, but difficulties appear to be arising as to the best type of fencing to use and possible cost reductions available from different forms of fencing.

Farm machinery appears to the author to offer the greatest scope for carrying out comparative tests, because from the survey data reported in Chapter 4, it is posing many problems for farmers. It would seem that relatively simple tests on the ease of operation and servicing of the machine could be carried out to compare different makes of machinery.

To initiate a farm input evaluation service the author suggests that those inputs which require simple short-term tests be tested first, e.g. milking machine rubberware, ear-tags. The short-term nature of the tests required would enable results of these tests to be available to the farmer soon after the testing service was instigated, thus helping to prove the value of the service to the farmer and the entire community.

Import licensing needs to be closely considered, not only in its impact on the general cost structure of the economy, but also because of its impact on the cost of certain protected farm inputs. If the present system of import licensing is to continue, the author feels a farm input evaluation service should conduct periodic surveys into the extent of protection of locally manufactured inputs.

### 6.11 Conclusion

Farmers have indicated a desire for input evaluation, with a promise of financial backing. The Consumer Council and the New Zealand Agricultural Engineering Institute are prepared to enter such a scheme. The initiative must essentially come from a farmer organisation such as Federated Farmers. Government participation, in the form of a grant would be required to set the scheme in operation. The author feels that if the scheme was successful it would not only save overseas funds and help improve the quality of inputs offered to farmers, but would also assist in maintaining the lowest possible cost structure for the farmer.

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APPENDIX AVALUE OF INDUSTRIAL INPUTS PURCHASED BY FARMERS

The following are the estimates of the value of inputs purchased from other sectors of the N.Z. economy by farmers : only those inputs used exclusively by the farming industry are included here :-

A. THE INTER-INDUSTRY STUDY OF THE NEW ZEALAND ECONOMY 1959-60:

<u>PART I</u>	<u>\$M</u>
Forestry	1.30
Grain milling	1.00
Animal feed	5.60
Spinning and weaving (other than wool milling)	1.00
Footwear (not rubber)	0.10
Canvas goods	0.20
Joinery (includes pre-cut buildings)	0.80
Rubber goods (other than tyres and tubes)	0.90
Vegetable and animal oils	0.60
Soap and candle	0.40
Chemical products	4.60
Petroleum and coal products	0.90
Structural clay products	0.60
Concrete products	1.20
Sheetmetal working	0.40
Wire working	0.50

Nail working	0.10
Farm machinery	0.70
Brushes and brooms	0.20
Plastic manufacture	0.10
	<hr/>
	\$21.20 M.
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Descriptions of the categories of goods contained within these various headings may be obtained from the Inter-Industry Study of the New Zealand Economy, 1959-60: Part 4.

B. NEW ZEALAND INDUSTRIAL PRODUCTION STATISTICS 1964-65

NEW CLASSIFICATION

1965-66

	\$M		\$M
Fencing posts cut	0.776		0.703
Milking machine rubberware(not available)			
Insecticides, fungicides	1.000	Insecticides only	1.412
Fungicides			0.085
Weedkillers	2.952		2.796
Stock remedies	2.732	Stock remedies & vaccines	1.536
Sheep dip	0.650	Sheep dip & drenches	2.156
Stock licks	0.294		0.224
Milk buckets	0.040		0.042
Milk and cream cans	0.062		0.052
Concrete posts	3.112		2.955
Chain-mesh netting fencing	0.628		0.675
Woven field fencing	1.410		1.433
Barbed wire	0.977		0.812
Strapping wire	0.582		0.553
Galvanised staples	0.272		0.297
<u>Goods assembled in New Zealand:</u>			
Ploughs	0.106		0.260
Cultivators	0.084		0.068
Harrows	0.056		0.033
Other cultivating equipment	0.006		0.005
Drills	0.062		0.004
Other seeding and planting equipment	0.014		0.019

Headers and combines	0.716	0.900
Mowers	0.358	0.472
Hay rakes	0.012	0.023
Tractors	4.522	4.952
Hay presses	0.114	0.316
Fertiliser spreaders	0.154	0.112
Assembled machines	1.796	2.763
<u>Goods manufactured in New Zealand:</u>		
Ploughs	0.390	0.238
Cultivators	0.084	0.414
Harrows	0.490	0.293
Other cultivating equipment (including parts)	0.242	0.208
Drills	0.422	0.366
Other seeding and planting equipment	0.076	0.038
Hay rakes	0.176	0.199
Other harvesting equipment	0.132	0.120
Fertilizer spreaders	2.254	0.208
	<hr/>	<hr/>
	\$25.75M	\$27.74M
	<hr/>	<hr/>

APPENDIX B

Copy of the Questionnaire and Introductory Letters.

MASSEY UNIVERSITY

Agricultural Economics and Farm Management Department

FARM CONSUMER SERVICE MAIL SURVEY

(Please mark the appropriate box with an 'X')

ANY INFORMATION WHICH YOU ARE GOOD ENOUGH TO SUPPLY HERE WILL BE TREATED AS STRICTLY CONFIDENTIAL.

1. The comparative testing service suggested is similar to that carried out by the Consumer Council;-

(a) Are you familiar with the services provided by the Consumer Council?

Yes

No

(b) Are you a subscriber to their magazine "Consumer"?

Yes

No

2. Do you feel there is a need for a comparative testing service for manufactured farm purchases to specify a "best buy" per £ spent?

Yes

No

Don't know

3. Which of the following items do you feel need testing most?

Farm machinery, veterinary supplies, fencing supplies, general farm requisites.

Please jot these down below putting the most important one first and the least important last.

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_

4. Do you feel there is a similar need for an evaluation of services, e.g., a comparison of hire purchase agreements, guarantees, share agreements, milking machine servicing, soil testing agencies, farm advisory services?

Yes

No

Don't know

5. Do you feel that at present the labelling on stock remedies such as stock licks, drenches, dips etc., is adequate in indicating their contents and possible dangers?

Yes

No

MASSEY UNIVERSITY

Agricultural Economics and Farm Management  
Department

FARM CONSUMER SERVICE MAIL SURVEY

(Please mark the appropriate box with an 'X')

ANY INFORMATION WHICH YOU ARE GOOD ENOUGH TO SUPPLY HERE WILL BE TREATED AS STRICTLY CONFIDENTIAL.

1. The comparative testing service suggested is similar to that carried out by the Consumer Council:-

(a) Are you familiar with the services provided by the Consumer Council?

Yes

No

(b) Are you a subscriber to their magazine "Consumer"?

Yes

No

2. Do you feel there is a need for a comparative testing service for manufactured farm purchases to specify a "best buy" per £ spent?

Yes

No

Don't know

3. What items in particular do you feel need testing? (Please jot them down below in the spaces shown.)

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

Now you have put these down would you please mark them in order of preference beginning with 1.

4. Do you feel there is a similar need for an evaluation of services, e.g., a comparison of hire purchase agreements, guarantees, share agreements, milking machine servicing, soil testing agencies, farm advisory services?

Yes

No

Don't know

5. Do you feel that at present the labelling on stock remedies such as stock

6. Are you a member of a Farm Improvement Club Trading Group or a similar rural trading group?

Farm Improvement Club Trading Group

Similar rural trading group

Not a member of either

7. If a testing service for manufactured farm purchases were set up, which of the following, in your opinion, would be the most suitable organisation to do the testing?

Consumer Council

Farm Improvement Club Trading Group

Similar rural trading group

Federated Farmers

Other (please specify): \_\_\_\_\_

8. (a) Would you be prepared to help pay for such a service?

No

Yes

Yes, if: \_\_\_\_\_

- (b) If you are prepared to pay for this service, what amount would you consider a "fair" annual subscription?

£1-2

£2-4

£4-6

£6-8

£8-10

£10 +

9. (a) The Agricultural Engineering Institute at Lincoln College is already carrying out certain tests on farm machinery. Have you read any of their reports?

Yes

No

- (b) If you have read these reports were they of any use to you?

Yes

No

If not, why not: \_\_\_\_\_

10. If there are any questions you think we may have missed, or any suggestions you yourself may have on such a service, could you please jot them down below.

Thank you for your help: to enable analysis of the survey to begin in reasonable time could you please return this by the 10th July. Please indicate below if you would like us to send you a report on the survey.

Yes

No

Copy of the Introductory Letter sent to Group IV.

Massey University  
PALMERSTON NORTH

May 1967

Dear *Sir*,.....

This letter seeks your help in assessing the need for an impartial and objective testing service for the farming industry. Mr B.G.O'Donnell, one of our post-graduate students, is looking into the feasibility of introducing such a service as part of his thesis work for a Master's degree. Mr Plimmer has made your name available as a member of the Manawatu Farm Improvement Club, and I would be  
... grateful if you could assist us by completing the enclosed questionnaire and returning it in the stamped addressed envelope.

With the increasing number of manufactured farm purchases coming on to the market each year, it is almost impossible for any farmer to be in a position to know whether the item he buys is a "better buy" than the other alternatives available. The proposed service would provide comparative tests as a supplement to the advertising put out by the various manufacturers. It would be similar to the Consumer Service, which tests a wide range of consumer goods and informs members of the outcome of those tests in the form of a magazine published four times each year.

Yours sincerely,



Signed using  
rubber stamp.

A.B. WARD

SENIOR LECTURER IN AGRICULTURAL ECONOMICS

ENCs.

In reply please quote  
ref:

B. 6

Telephone

Copy of the Introductory Letter sent to Groups I, II and III.

## ***Massey University***

PALMERSTON NORTH  
NEW ZEALAND

May, 1967

Dear *Mr. Smith,*

You may recall that you were contacted by telephone and subsequently assisted with a survey carried out by the Massey University Farm Management Department. In that survey, besides giving us a lot of useful information about your farm, you offered to participate in further follow-up work. This letter seeks your help in assessing the need for an impartial and objective testing service for the farming industry.

Mr B.G. O'Donnell, one of our post-graduate students, is looking into the feasibility of introducing such a service, as part of his thesis work for a Master's degree. The testing service would be similar to the Consumer Service which tests a wide range of consumer goods and informs members of the outcome of those tests in the form of a magazine published four times each year.

With the increasing number of manufactured farm purchases coming on to the market each year, it is almost impossible for any farmer to be in a position to know whether the item he buys is a 'better buy' than the other alternatives available. The proposed service would provide comparative tests as a supplement to the advertising put out by the various manufacturers.

Your help in this study would be much appreciated. Please complete the enclosed questionnaire and return in the stamped addressed envelope provided. On the back of this envelope you will find your name and address. I would be grateful if you could check this before sending it back to us, and if necessary correct it.

Yours sincerely,

*A.B. Ward.*

Personally  
signed.

A.B. Ward

SENIOR LECTURER IN  
AGRICULTURAL ECONOMICS

Encls.

A P P E N D I X    C

1. ESTIMATE OF NUMBER OF FARMERS IN N.Z.

The following figures show the number of farm holdings (including horticulture, timber etc.) for the 1959-60 year <sup>1</sup>:  
the total obtained is an estimate of the number of farmers in N.Z.

Principally dairy farming	26,415
Principally sheep farming	26,610
Principally beef farming	1,432
Dairy and sheep with dairy predominant	2,680
Sheep and dairy with sheep predominant	1,575
Mixed dairy and sheep	1,398
Sheep and cropping with sheep predominant	3,760
Cropping and sheep with cropping predominant	632
Mixed sheep and cropping	912
General mixed farming	1,564
Other (including horticulture, timber etc.)	<u>5,359</u>
Total	<u>72,337</u> holdings

2. ESTIMATE OF NUMBER OF SHEEP, DAIRY, BEEF AND MIXED FARMERS IN N.Z.

Deducting the "other" bracket (which includes horticulture, timber etc.) in section 1, a figure of 66,978 is obtained as the number of sheep, dairy, beef and mixed farmers in N.Z.

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<sup>1</sup> N.Z. Dept. of Statistics, N.Z. Official Year Book 1967 (Wellington: Government Printer), 392.

APPENDIX DADDITIONAL INFORMATION FROM THE QUESTIONNAIRE

This appendix gives further information to supplement the contents of Chapter 4.

1. TOTALS OF ALL ITEMS MENTIONED:

The following items were mentioned the number of times indicated :

Nine times

Mowers (undefined): finger mowers, including hay mowers

Eight times

Hay rakes and conditioners

Implements

Vaccines

Wirenetting, wire, staples, nails

Seven times

Alkathene, polythene, plastic hose

Brushes and brooms

Electric fence units and insulators

Farm tools, including machine tools

Haymaking machinery

Headers and harvesting equipment

Tail-tags, ear-tags, ear-markers

Tyres, including recaps

Five Times

Bloat preparations  
Cultivators  
Drenching equipment, including drenching guns  
Hormone sprays  
Machinery parts  
Penicillin and allied antibiotics  
Pumps  
Silarators and rotary choppers  
Soil testing agencies  
Teat salves, dairy creams, ointments  
Wood preservative, treatment for posts and battens,  
tanalized posts, treated posts and battens

Four Times

Batteries, including torch batteries  
Chain saws  
Crop and pasture sprays  
Drills  
Insecticides  
Plough shares  
Tool handles

Three Times

Electrical appliances and tools  
Fencing tools  
Hay balers  
Paint, galvanizing and rust preventing materials  
Rotary mowers

Shearing machinery (both gear and handpiece)

Spray chemicals

Welded goods, including steel pipe gates and cattle bails

Twice

Dairy shed requirements

Farm advisory services

Farm building materials

Farm motorbikes

Fencing posts, both concrete and wooden

General farm requisites

Guarantees

Hay cartage and handling machinery

Milking machine and other farm servicing

Ploughs

Prefabricated buildings

Topdressers

Once

Baling twine

Brands and branding systems for marking sheep

Catarrhal dosing

Crawler tractors

Dairy soap

Disinfectants

Electric motors

Float taps

Footrot materials

Fungicides

Harrows

Insulation for housing

Light bulbs

Light trucks and landrovers

Locally made farm machinery

Machinery servicing

Manure distributors

Metal in implements

Milk meters

Petrol engines

Plastic field pipes

Potato harvesters and sorters

Safety frames

Seed

Service contracts

Sharefarming agreements

Spark plugs

Spraying equipment

Stock proprietary medicines

Tractor safety devices

Tupping paste versus crayon for practicability and  
scourability.

Various marking systems for identifying bought-in sheep

Veterinary charges

Welding equipment and welding rods

Wool presses

Working clothes

2. FIRST OPTION:

In this first option the following number of farmers felt the particular items shown needed testing:

Four farmers for -

Brushes and brooms

Stock foods, poultry foods, dog crackers etc.

Three farmers for -

Drenching equipment

Electric fence units and insulators

Plough shares

Vaccines

Weedicides

Two farmers for -

Bloat preparations

Cultivators

Drills

Electric appliances and tools

Finger mowers

Gumboots and rubberware

Hormone sprays

Silarators

Stock licks

Tail-tags, ear-tags, ear-markers

Wood preservative, treatment for posts and battens,  
tanalized posts, treated posts and battens.

One farmer for -

Alkathene, polythene, plastic hose

Batteries, including torch batteries

Crawler tractors

Farm tools

Fencing supplies

Guarantees

Hay balers

Headers

Implements

Insecticides

Machinery parts

Machinery servicing

Manure distributors

Plastic field pipes

Pumps

Rotary mowers

Safety frames

Soil testing agencies

Spray chemicals

Teat salves, dairy creams, ointments

Tractor safety devices

Various marking systems for identifying bought in sheep

First option analysed on a farm type basis:

(adjusted for unequal sample size)

Items requiring testing	Farm Type							
	Sheep		Dairy		Mixed		Total	
	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.
No answer	7	23	8	8	1	4	16	35
Alkathene, plastic hose, polythene	0	0	1	1	0	0	1	1
Batteries, (including torch)	0	0	1	1	0	0	1	1
Bloat preparations	0	0	2	2	0	0	2	2
Brushes & brooms	0	0	3	3	0	0	3	3
Crawler tractors	0	0	0	0	1	4	1	4
Detergents	0	0	9	9	0	0	9	9
Dips	4	13	0	0	0	0	4	13
Drenches	4	13	2	2	0	0	6	15
Drenching equipment	3	10	0	0	0	0	3	10
Drills	0	0	0	0	2	8	2	8
Electric appliances	1	3	0	0	1	4	2	7
Electric fence units	0	0	2	2	0	0	2	2
Farm machinery	0	0	5	5	3	11	8	16
Fencing supplies	0	0	0	0	1	4	1	4

Fertiliser	1	3	3	3	0	0	4	6
Finger mowers	0	0	0	0	1	4	1	4
Gumboots & rubberware	2	7	0	0	0	0	2	7
Headers	0	0	0	0	1	4	1	4
Hormone sprays	1	3	1	1	0	0	2	4
Implements	1	3	0	0	0	0	1	3
Insecticides	0	0	0	0	1	4	1	4
Machinery servicing	1	3	0	0	0	0	1	3
Milking machines	0	0	14	14	0	0	14	14
Milking machine rubberware	0	0	6	6	0	0	6	6
N.A. (since felt no need for service)	3	10	11	11	3	11	17	32
Plastic field pipes	0	0	1	1	0	0	1	1
Plough shares	0	0	0	0	2	8	2	8
Pumps	0	0	1	1	0	0	1	1
Safety frames	1	3	0	0	0	0	1	3
Silarators & rotary choppers	0	0	0	0	1	4	1	4
Soil testing agencies	0	0	1	1	0	0	1	1
Spray chemicals	0	0	0	0	1	4	1	4
Stock foods, dog crackers, poultry foods etc.	1	3	3	3	0	0	4	6

Stock licks	0	0	1	1	1	4	2	5
Tail-tags, ear- tags, ear- markers	1	3	1	1	0	0	2	4
Tractors	1	3	3	3	3	11	7	17
Treatment for & treated posts	0	0	2	2	0	0	2	2
Vaccines	1	3	0	0	2	8	3	11
Vet. supplies	1	3	3	3	1	4	5	10
Weedicides	1	3	0	0	1	4	2	7

---

### 3. SECOND OPTION

Below are shown the number of farmers who felt the particular items shown needed testing as a second option: -

Five farmers for -

Finger mowers, including hay mowers

Weedicides

Four farmers for -

Fertiliser

Gumboots, boots and rubberware

Stock foods, poultry foods, dog crackers etc.

Tyres, including recaps

Veterinary supplies

Three farmers for -

Hay-making machinery

Hay rakes and conditioners

Implements

Milking machines

Two farmers for -

Batteries, including torch batteries  
Drenching equipment  
Electric fence units and insulators  
Machinery parts  
Penicillin and allied antibiotics  
Rotary mowers  
Silarators and choppers  
Test salves, dairy creams, ointments  
Welded goods, including steel pipe gates and cattle bails  
Wire, wire-netting, staples, nails

One farmer for -

Alkathene, polythene, plastic hose  
Baling twine  
Bloat preparations  
Cultivators  
Disinfectants  
Electric appliances  
Farm advisory services  
Fencing tools  
General farm requisites  
Harrows  
Hay balers  
Headers  
Hormone sprays  
Insecticides  
Locally made farm machinery

Milking machine and other farm servicing

Milk meters

Pumps

Share farming agreements

Soil-testing agencies

Spraying equipment

Tail-tags, ear-tags, ear-markers

Topdressers

Welding equipment and welding rods

Wood preservative, treatment for posts and battens,  
tanalized posts, treated posts and battens

Second option analysed on a farm type basis:

(Adjusted for unequal sample size)

Items requiring testing	Farm Type							
	Sheep		Dairy		Mixed		Total	
	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.
No answer	8	26	16	16	3	11	27	53
Alkathene, polythene, plastic hose	0	0	1	1	0	0	1	1
Baling twine	0	0	1	1	0	0	1	1
Batteries (including torch)	0	0	2	2	0	0	2	2
Bloat preparations	0	0	1	1	0	0	1	1
Detergents	0	0	7	7	0	0	7	7
Dips	4	13	1	1	0	0	5	14
Disinfectants	0	0	1	1	0	0	1	1
Drenches	6	20	1	1	2	8	9	29
Drenching equipment	1	3	0	0	0	0	1	3
Electric appliances	0	0	1	1	0	0	1	1
Electric fence units	0	0	1	1	1	4	2	5
Farm advisory services	0	0	1	1	0	0	1	1
Farm machinery	1	3	9	9	2	8	12	20
Fertiliser	0	0	0	0	2	8	2	8
Finger mowers	1	3	1	0	1	4	3	7
General farm requisites	0	0	0	0	1	4	1	4

Gumboots & rubberware	0	0	2	2	0	0	2	2
Hay balers	0	0	0	0	1	4	1	4
Hayrakes and conditioners	0	0	1	1	1	4	2	5
Headers	0	0	1	1	0	0	1	1
Hormone sprays	0	0	1	1	0	0	1	1
Implements	1	3	1	1	0	0	2	4
Insecticides	0	0	0	0	1	4	1	4
Locally made farm machinery	0	0	0	0	1	4	1	4
Machinery parts	1	3	0	0	1	4	2	7
Milking machines	1	3	2	2	0	0	3	5
Milking machine rubberware	0	0	2	2	0	0	2	2
Milking machine servicing	0	0	0	0	1	4	1	4
Milk meters	0	0	1	1	0	0	1	1
N.A. (since felt no need for service)	3	10	11	11	3	11	17	32
Pumps	0	0	1	1	0	0	1	1
Seed	0	0	1	1	0	0	1	1
Soil-testing agencies	0	0	1	1	0	0	1	1
Spraying equipment	1	3	0	0	0	0	1	3
Stock foods, dog crackers, poultry foods etc.	2	7	3	3	2	8	7	18

Stock licks	2	7	3	3	2	8	7	18
Teat salves, dairy creams, ointments	0	0	1	1	0	0	1	1
Topdressers	0	0	0	0	1	4	1	4
Tractors	1	3	2	2	0	0	3	5
Treatment for & treated posts	0	0	0	0	1	4	1	4
Tyres	0	0	1	1	2	8	3	9
Vet. supplies	1	3	1	1	0	0	2	4
Weedicides	1	3	3	3	1	4	5	10
Welded goods	1	3	1	1	0	0	2	4
Welding equipment	0	0	1	1	0	0	1	1
Wire, wire-netting staples, nails	1	3	1	1	0	0	2	4

---

#### 4. THIRD OPTION

The following are the numbers of farmers who felt the following items required testing:

Four farmers for -

Alkathene, polythene, plastic hose

Detergents

Fencing supplies

Fertiliser

Milking machines

Three farmers for -

Chain saws  
Crop and pasture sprays  
Dips  
Haymaking machinery  
Hay rakes and conditioners  
Headers

Two farmers for -

Bloat preparations  
Brushes and brooms  
Cultivators  
Farm tools  
Fencing posts  
Hay cartage and handling machinery  
Milking machine rubberware  
Penicillin and allied antibiotics  
Prefabricated sheds  
Tail-tags, ear-tags, ear-markers  
Tool handles  
Treatment for and treated posts

One farmer for -

Batteries, including torch batteries  
Brands and branding systems for marking sheep  
Catarrhal dosing  
Dairy shed requirements  
Dairy soap

Drills

Electric fence units and insulators

Electric motors

Float taps

Gumboots, boots and rubberware

Hay balers

Hormone sprays

Implements

Insecticides

Insulation for housing

Light bulbs

Light trucks

Machinery parts

Metal in implements

Milking machine servicing

Paints

Ploughs

Plough shares

Potato harvesters and sorters

Pumps

Seed

Silarators and choppers

Spray chemicals

Soil testing agencies

Stock proprietary medicines

Stock licks

Teat salves, dairy creams, ointments

Topdressers

Tapping paste versus crayon for practicability  
and scourability

Tyres

Veterinary charges

Veterinary supplies

Wire, wire-netting, staples, nails

Wool presses

Working clothes

Third option analysed on a farm type basis:

(adjusted for unequal sample size)

Items requiring testing	Farm Type							
	Sheep		Dairy		Mixed		Total	
	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.
No answer	13	43	33	33	6	23	52	99
Alkathene, plastic hose, polythene	0	0	3	3	0	0	3	3
Batteries (including torch)	0	0	0	0	1	4	1	4
Bloat preparations	0	0	1	1	0	0	1	1
Brands and branding systems for sheep	0	0	1	1	0	0	1	1
Brushes and brooms	0	0	1	1	0	0	1	1
Catarrhal dosing	0	0	1	1	0	0	1	1
Chain saws	1	3	1	1	0	0	2	4
Crop and pasture sprays	0	0	0	0	1	4	1	4
Cultivators	0	0	0	0	1	4	1	4
Dairy shed requirements	0	0	1	1	0	0	1	1
Dairy soap	0	0	1	1	0	0	1	1
Detergents	1	3	2	2	0	0	3	5
Dips	0	0	0	0	1	4	1	4
Drenches	1	3	1	1	1	4	3	8

Electric motors	0	0	1	1	0	0	1	1
Farm machinery	2	7	0	0	0	0	2	7
Farm tools	1	3	1	1	0	0	2	4
Fencing supplies	1	3	2	2	0	0	3	5
Fertiliser	0	0	1	1	0	0	1	1
Float taps	0	0	1	1	0	0	1	1
Gumboots and rubberware	0	0	1	1	0	0	1	1
Hay balers	0	0	0	0	1	4	1	4
Hay cartage & handling machinery	0	0	1	1	1	4	2	5
Hay making machinery	1	3	1	1	0	0	2	4
Hay rakes and conditioners	1	3	1	1	1	4	3	8
Headers	0	0	0	0	2	8	2	8
Insecticides	0	0	0	0	1	4	1	4
Insulation for housing	0	0	1	1	0	0	1	1
Light bulbs	0	0	1	1	0	0	1	1
Machinery parts	0	0	0	0	1	4	1	4
Metal in implements	0	0	1	1	0	0	1	1
Milking machines	0	0	3	3	0	0	3	3
Milking machine rubberware	0	0	2	2	0	0	2	2
N.A. (Since felt no need for service)	3	10	11	11	3	11	17	32

Penicillin and allied antibiotics	0	0	1	1	0	0	1	1
Plough shares	0	0	0	0	1	4	1	4
Posts (wooden & concrete)	1	3	0	0	0	0	1	3
Prefabricated sheds	0	0	1	1	0	0	1	1
Pumps	0	0	1	1	0	0	1	1
Seed	0	0	1	1	0	0	1	1
Stock foods, dog crackers, poultry foods etc.	2	7	0	0	3	11	5	18
Stock proprietary medicines	0	0	1	1	0	0	1	1
Tail-tags, ear-tags, ear-markers	0	0	1	1	1	4	2	5
Teat salves, dairy creams, ointments	0	0	1	1	0	0	1	1
Tool handles	1	3	0	0	0	0	1	3
Tractors	2	7	1	1	1	4	4	12
Treatment for & treated posts	1	3	0	0	1	4	2	7
Tyres	0	0	1	1	0	0	1	1
Vaccines	3	10	0	0	0	0	3	10
Vet. supplies	0	0	1	1	0	0	1	1
Weedicides	0	0	1	1	1	4	2	5
Wool presses	1	3	0	0	0	0	1	3
Working clothes	0	0	1	1	0	0	1	1

5. FOURTH OPTION

The following items were felt to require testing by the shown number of farmers:

Three farmers

Detergents

Farm tools

Implements

Shearing machinery (gear and handpiece)

Tractors

Two farmers

Farm building materials

Farm motorbikes

Fencing tools

Fertiliser

Finger mowers (including hay mowers)

Hay rakes and conditioners

Milking machine rubberware

Paints

Pumps

Soil testing agencies

Stock licks

Tool handles

One farmer

Chain saws

Crop and pasture sprays

Drills

Farm advisory services

Footrot materials  
Fungicides  
Guarantees  
General farm requisites  
Headers  
Hormone sprays  
Insecticides  
Machinery parts  
Penicillin and allied antibiotics  
Petrol engines  
Ploughs  
Service contracts  
Spark plugs  
Spray chemicals  
Tail-tags, ear-tags, ear-markers  
Teat salves, dairy creams, ointments  
Tyres  
Welded goods  
Working clothes

Fourth option analysed on a farm type basis

(adjusted for unequal sample size)

Items requiring testing	Farm Type							
	Sheep		Dairy		Mixed		Total	
	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.	Actual No.	Adjusted No.
No answer	17	55	47	47	10	38	74	140
Chain saws	1	3	0	0	0	0	1	3
Crop and pasture sprays	0	0	1	1	0	0	1	1
Detergents	0	0	2	2	0	0	2	2
Dips	0	0	0	0	2	8	2	8
Drenches	1	3	0	0	2	8	3	11
Farm building materials	0	0	1	1	1	4	2	5
Farm machinery	1	3	0	0	1	4	2	7
Farm motorbikes	1	3	0	0	0	0	1	3
Farm tools	0	0	2	2	0	0	2	2
Fencing supplies	2	7	2	2	1	4	5	13
Fencing tools	1	3	1	1	0	0	2	4
Fertiliser	0	0	1	1	0	0	1	1
Finger mowers	0	0	1	1	0	0	1	1
Footrot materials	1	3	0	0	0	0	1	3
Fungicides	0	0	0	0	1	4	1	4
General farm requisites	0	0	1	1	0	0	1	1
Guarantees	0	0	0	0	1	4	1	4

Hayrakes and conditioners	0	0	1	1	1	4	2	5
Headers	0	0	0	0	1	4	1	4
Hormone sprays	0	0	1	1	0	0	1	1
Implements	0	0	2	2	0	0	2	2
Insecticides	0	0	1	1	0	0	1	1
Machinery parts	0	0	0	0	1	4	1	4
Milking machines	0	0	3	3	1	4	4	7
Milking machine rubberware	0	0	1	1	0	0	1	1
N.A. (since felt no need for service)	3	10	11	11	3	11	17	32
Petrol engines	0	0	1	1	0	0	1	1
Service contracts	0	0	1	1	0	0	1	1
Shearing machinery	2	7	0	0	0	0	2	7
Spark plugs	0	0	0	0	1	4	1	4
Stock foods, dog crackers, poultry foods etc.	2	7	2	2	0	0	4	9
Stock licks	1	3	0	0	1	4	2	7
Tail-tags, ear-tags ear-markers	0	0	1	1	0	0	1	1
Teat salves, dairy creams ointments	0	0	1	1	0	0	1	1
Tool handles	1	3	1	1	0	0	2	4

Tractors	0	0	1	1	0	0	1	1
Tyres	0	0	0	0	1	4	1	4
Vet. supplies	0	0	1	1	1	4	2	5
Weedicides	1	3	1	1	0	0	2	4
Welded goods	0	0	1	1	0	0	1	1
Wire, wire- netting, staples, nails	1	3	2	2	0	0	3	5

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#### 6. THE ORGANISATION TO DO THE TESTING:

Below are shown further organisations which were suggested to do the testing: -

##### Four farmers

Consumer Council or Farm Improvement Club Trading Group

##### Three farmers

Department of Agriculture

Consumer Council of farmers' or farmer organisations

Don't know

Consumer Council and N.Z. Agricultural Engineering Institute

##### Two farmers

Centralised testing group

Consumer Council and agricultural universities

##### One farmer

Federated Farmers and agricultural universities

Body with farmer and/or Producer Board backing

Consumer Council and trading group

Department of Agriculture and N.Z. Agricultural Engineering Institute

Independent Body with representatives of Federated Farmers, rural trading groups, Consumer Council, Department of Agriculture and agricultural universities

An independent officer

Some Government farming concern

A Government Department such as Department of Agriculture or agricultural universities

Consumer Council in conjunction with Massey and some selected farmers

Any organisation politically independent of Government (not necessarily removed from Government technical services), importing, wholesale, retail or similar interests

Representatives of Consumer Council, Farm Improvement Club and Federated Farmers in one group

Specific investigating group having liaison with both Consumer Council, D.S.I.R. and other groups agriculturally orientated.

Consumer Council or a Farm Improvement Club Trading Group

Consumer Council or a rural trading group

Federated Farmers or N.Z. Agricultural Engineering Institute

Federated Farmers or Department of Agriculture with a Federated Farmers and Farm Improvement Club representative

Consumer Council and Farm Improvement Club Trading Group

Consumer Council or trained personnel of one of the agricultural universities

Consumer Council or N.Z. Agricultural Engineering Institute

N.Z. Agricultural Engineering Institute for machinery and fencing and an allied division for veterinary supplies and general farm requisites

Young Farmers' Clubs since are more enthusiastic than Federated Farmers for this type of project.

The farmers below gave two or three suggestions for an organisation to carry out the testing: -

Three farmers

Consumer Council : agricultural universities

Two farmers

Consumer Council : N.Z. Agricultural Engineering Institute

Consumer Council : similar rural trading group

One farmer

Consumer Council : similar rural trading group : separate qualified competent testing authority

Consumer Council : Department of Agriculture or D.S.I.R. for some tests

Federated Farmers : D.S.I.R.

Consumer Council : Federated Farmers

Consumer Council : Farm Improvement Club Trading Group : not necessarily a rural trading group

Consumer Council : farm machinery could well be tested by agricultural contractors

Massey or Lincoln farm machinery department or Department of Agriculture

Farm Improvement Club Trading Group : Federated Farmers : Dairy Board

7. FARMERS' WILLINGNESS TO PAY:

Reasons additional to those offered in Chapter 4 appear below.

Farmers were willing to pay if -

Six farmers

Costs were reduced or charge recouped by more informed buying.

Three farmers

There was a proportionate levy.

Small levy on item were to go to the Consumer Council.

One farmer

Increased subscription to Federated Farmers and this money used.

A mark of approval was put on items.

Available at service outlets.

Another cost would need to be examined.

In proportion to the use farmer could make of the service.

Results only made available to personnel who helped to pay.

If efficient, for a specific item or service and for a  
limited period.

Practicable and self supported by farmers organisations.

Small annual subscription and additional fee charged for  
information asked for.

8. THE USE OF REPORTS:

One farmer

Reports have been negative, i.e. no machinery ideal etc.

Worked on similar things as manufacturers: little work on  
stress, torsion etc.

Depends on age and stage of farming farmer is at.

Too much technical language and no comparative evaluation.

9. IMPROVEMENTS IN THE LINCOLN SCHEME

The following are further suggestions to add to those offered in  
Chapter 4 : -

Six farmers

Consumer evaluation, comparative testing

Four farmers

Farmer has not heard of the Lincoln Scheme

Three farmers

Functioning adequately

Two farmers

Cheaper reports which can be obtained easily.

One farmer

Reports related to the skill in using the machine.

A wider range of machinery tested and related more to the  
efficiency of the machine.

Check the design of locally made implements.

Make recommendations to tractor manufacturers for N.Z. conditions.

Embrace all manufactures used by farmers.

Give to farmers to test.

Test the machine before releasing it to the public.

A Farm Improvement Club with Lincoln College

Trials similar to the Nebraska tests

Most farm machinery enterprises have a very negative attitude to

the tests: would like to see tests compulsory and reports more readily available.

Need to look at quality of castings, stress, more emphasis on cast steel versus cast iron, look into assembly process.

A personal visit if possible.

The use of a pamphlet or bulletin.

Has been little in the farm journals.

Less detail and more coverage.

Farmer is a long way from Lincoln and is not supplied with the reports.

Institute needs to name the make or brand.

Reports sent direct, in bulletin form, to subscribers.

Tests should be carried out on undeveloped and developed land where applicable.

Evaluation of actual user experience may be of great value.

A scheme to help young farmers and others to achieve better driving and handling skills in regard to all machines.

## A P P E N D I X E

### FURTHER INFORMATION PROVIDED BY RESPONDENTS

Some of the suggestions and comments offered only amplified parts of the questions asked without adding any new ideas: these particular comments and suggestions are not included here.

Frequently it was felt that a testing service could only be developed successfully in association with a farming organisation as an urban-orientated organisation would not know the end-use to which a particular input was to be put.

Further suggestions and comments are listed below : -

#### (i) Possible Organisation and Structure of the Service

In general farmers are not skilled in spending their money wisely because of the urge to improve their land. They accept costs as they occur, with little foreknowledge as to what they will be anyway. The service would be of value to those living a distance from town who had to order goods, as it was not convenient to look for themselves. Even where a farmer lives close to town it is not always easy to pick the best article for its price.

A testing service supply a list of new appliances or machinery in a report and indicate whether the item had been tested or not.

The Consumer Council indicates what drugs and remedies are available, their uses and the economics of their usage.

Standardisation of shearing machine plants, chains, standards and droppers.

The circulation of lists of firms and agents who provide good

after sales service for farm machinery.

If the testing service began functioning, it would be expected that manufacturers would submit prototypes as has been the case for milk meters.

After the testing service had been functioning for some time it was possible that manufacturers would pay fees to have their particular products evaluation.

Massey and Lincoln students could help in the research into farm inputs.

In conditions of low prices farmers would not be willing to pay a subscription for a testing service, mainly because all expenditure on the items being tested would have been curtailed. Where little new equipment or materials were being bought there would be no need to know test results. However in the long run tests would help the farmer, and in the short run encourage the manufacturer to put out a good product.

(ii) Further Items Needing Testing or Costing

Those items mentioned frequently as in need of testing or costing were rates for contract shearing, the cost of veterinary supplies, repair bills and the cost of spare parts.

The following suggestions were also offered: -

Some guide be given on rate per hour and milage chargable.

Some guide on the cost of various goods.

Guidance on farm buildings for type of construction material.

Investigate the cost of transport to and from farms.

Look into and quote the prices of stock licks, drenches and spray materials (both at the wholesale and the retail rates).

Far too much scope in regard to services, e.g. a broken contract price which is only verbal.

Stricter regulations in relation to machinery guarantees to ensure the machinery did the job for which it had been sold. Equipment is often not capable of doing the job expected of it and the farmer has to alter it to perform the appropriate job, at his own expense.

Much of the problem is due to faulty workmanship with salesmen not being completely conversant with the item they are selling and the item not being adequately tested before despatch.

A survey be carried out of the efficiency of Drainage Boards and local bodies serving farmers.

A testing service provide information on comparative charges for aerial and truck topdressing, shearing and crutching rates, agricultural contract work, bulldozing, transport costs and other similar categories of costs to promote a greater amount of competition between farm service organisations.

Anything which would help to break some of the monopolies on parts a farmer needs would be valuable.

The whole system of importation and distribution of farm requirements should be surveyed, with particular reference to percentages made on certain goods and the mark-ups etc. Charges for spare parts for farm machinery should be a particular point of interest. (The author considers this is side-effect of import licensing).

Dissatisfaction with remedies offered by the veterinary surgeon; the farmer feels professionally ignorant, since it is reasonable to take only what the vet. offers, and this from past experience is known to be not as efficacious as the remedy prescribed on some earlier visits. (The author feels this may indicate that resistant strains are being developed.)

With the range of different circumstances and uses in which an input may be expected to perform, it would not be possible to specify a "best buy" per \$ spent, but rather it would be more useful to bring to the notice of the purchaser those points which a seller does not enunciate.

(iii) Communication and Extension of Testing Service Information

The findings of a testing service be published in the Journal of Agriculture or some other farm journal.

Any testing service should send out all information in supplements, firstly to extension workers in order that items could be discussed at Discussion Group meetings, field days and other extension meetings. Items chosen should be selected in relation to their topicality when the test results are published.

Payment could be by means of an additional supplement to "Consumer" as is now done with the Car Supplement. Possible additions could be similar reports on English machinery.

To be of real value a testing service would have to answer specific enquiries from members.

Have copies of the testing service bulletin available for reference by the customer when he is making a purchase.

Extension officers obtain farmers' reactions to the use of certain inputs. If the results were tabulated from a large number of farmers, the resulting analysis could provide a useful guide. Many young farmers have made mistakes through wrong decisions where older experienced farmers could have put them right.

A combination of Federated Farmers and the Consumer Council (because it is independent), with Federated Farmers increasing their subscription by \$1 and paying this to the Consumer Council who would be the testing authority: Federated Farmers could publish the reports and conduct surveys into items which required testing through "Straight Furrow".

