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Good Industry-good Investments

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Good Industry-good Investments

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Summary

New Zealand primary sector industry approaches to industry-good investment, and the approaches to evaluation reported in the literature were reviewed to provide understanding of the key issues in ensuring such investments meet stakeholder needs. The extent to which planning and evaluation processes are linked to achievement of measurable industry objectives varies widely amongst primary sector industries, reflecting differing industry sizes and resource levels. Although these factors inevitably influence investment opportunities and the resources available for planning and monitoring profoundly, a framework has been developed to accommodate these differences, and to be of value to all industries.

Key words: industry-good investment evaluation, cost-benefit

Introduction

The majority of New Zealand's agricultural and horticultural industries make use of the Commodity Levies Act 1990 (CLA), to invest grower levies in industry-good activities. The ability of industries to collect and leverage levy funds to attract public funding, particularly for research and development, is vital to industry development irrespective of industry size. The range of levy-funded activities permitted under CLA is broad and the exclusions are mostly those directly related to commercial activities and generic advertising. Most individual levy orders include the full range of activities permitted by the Act in order to allow investment areas to change in line with industry priorities. Others have specific exclusions that reflect industry structure or are narrowly focused on a small number of activities.

The level of funding collected by industries via Commodity Levy ranges from approximately \$47 million per year to \$12,000 per year and the leveraging effect increases the available funding considerably. For example, the Fresh Vegetable Product Group of Horticulture New Zealand reported in 2006 that \$350,000 of industry funding for Integrated Pest Management projects attracted Government funds in excess of \$1.4 million dollars; a leverage ratio of 1:4. For the smallest industries a modest levy take enables them to bid into the Sustainable Farming Fund. This fund is extremely important in the development of industries not well equipped to deal directly with the larger research funding organisations, or to compete with better resourced industries to invest for growth.

The Levy Order process is administered by the Ministry of Agriculture and Forestry (MAF), which must be satisfied that the proposed uses of levy funds will benefit the industry. In order to provide information to assist levying organisations, particularly those sectors considering implementing a commodity levy for the first time, MAF

commissioned the development of a framework for understanding the issues that are important in evaluating the impacts of industry-good investments. The work reviewed the analytical techniques described in the international literature for evaluation of industry-good investments as potential tools in investment planning, and identified the evaluation and planning practices currently in use in New Zealand. The views of industry stakeholders on the types of investment that generate the greatest benefits were sought by means of interviews and focus groups,

New Zealand Industry Practices and Views

The Practices employed by Industry Organisations

The CLA (Section 5(2)(i)) establishes the responsibility of the industry organisation to invest levy funds to generate benefits primarily for levy-payers. This, perhaps, differs from the situation in other countries where there may be substantial direct contribution by government to the funds available to producer organisations. Section 5(2)(j) of the Act requires that the benefits received by levy-payers from levy-funded investments outweigh the costs of the levy to them. Although it can be shown that many industry-good investments undertaken using producer funds have implications for other groups, the responsibility of the levying industry organisation is to those directly involved in levy payment. Consequently, the framework they employ for assessing the relative values of industry-good investments must reflect this responsibility. During the levy application process industry organisations are required to provide “detailed cost-benefit analysis of key spending areas” (MAF-unpublished guide to information required with levy order applications). The application must show how the outcomes of the expenditure will benefit levy-payers and the consequences if the expenditure is not undertaken.

There is considerable variation in the manner in which industry organisations interpret this requirement and for a number the exercise is viewed as simply “one of the hoops that must be jumped through” to secure continued funding, rather than a process of value to the industry in itself, that would be undertaken irrespective of the CLA. Most of the quantitative analyses that are presented are simplistic snapshots of the potential impacts of selected investments.

In fact, the interviews found that most industry organisations consider that formal cost-benefit analysis, ex-ante or ex-post, lacks the ability to fully capture the impacts of the types of investment undertaken by organisations in the land-based sectors. The impacts of changes arising from these investments are recognised as being complex and far-reaching in many cases. Only the dairy industry has a regular programme of formal ex-post evaluation although the meat industry planned to undertake more of this in future. Several interviewees spoke of the difficulty of identifying the impacts of a single project when the industry is continually subject to the effects of market, climate and regulatory change as well as, in larger industries, the impacts of multiple industry-led initiatives. Industry organisations also reported grower distrust and lack of understanding of the results of cost-benefit analysis.

Although quantitative analysis rarely occurs, some ex-post review processes have been implemented that range from regularly instituted formal review processes, to ensuring that projects meet the outcomes specified in agreements between provider and industry organisation.

The generation of maximum benefits for an industry implies that the investments

selected will address issues of strategic priority. Therefore, in order to develop a framework for industry-good investment evaluation that can be adapted to reflect the diverse resourcing levels of the land-based industries, it is necessary to understand the strategic planning and priority-settings that define the context in which evaluation occurs.

The level of strategic planning that is undertaken by industry organisations in the land-based industries included in the study ranges from no strategic planning at all to the preparation, regular review, and updating of complex detailed plans that establish the basis for investment decision-making. In general, the level of planning reflects the size of, and resources available to, the industry.

In large industries strategic planning tends to be an on-going process in which broad consultation with stakeholders is a key element in the identification of medium-term industry priorities. Investment proposals are assessed against strategic priorities although the extent to which formal economic evaluation is used in this process differs. The annual priority-setting and work-planning processes involve multiple stages and a range of players.

There is considerable variability in the approaches taken to this process. They range from heavy reliance on continuing discussions with industry on to inform in-house development of annual investment priorities, to a highly devolved process where committees comprising industry organisation management and governance, as well as other industry participants, formulate priorities and plans for final approval by the Board. In some industries annual investment planning is very explicitly linked to the strategic priorities, while in others this process is less formal.

The medium-sized industries studied also have strategic plans, but the sophistication of the processes involved in their development and their relative importance in annual investment decision making varies. Also variable is the relative importance of formal industry consultation during the planning process.

However, amongst the small industries included in the study formal strategic plans do not exist. Some small industries feel that the best they can do is to survive from year to year using whatever funds are available from levies and external sources to address the issues that are most pressing at the time, or selecting the best projects put forward by providers. Often the level of co-funding available is a more important project selection criterion than the expected benefits to stakeholders. Involvement in a multi-year project means that small industries may not have funding to react to unexpected issues that confront their stakeholders. They regard strategic planning as an exercise that is too complex for the resources available to them, and consider that the strength of external influences on industry outcomes makes medium-term planning pointless.

The Views of Levy-payers

Amongst levy-payers in New Zealand the level of awareness of the industry-good investments made on their behalf was found to be relatively low. Awareness was generally greatest in smaller industries and those that are geographically concentrated, and least in industries that are large (the dairy and meat and wool industries) or diversified with respect to product and geographic location (e.g. those linked to Horticulture New Zealand). In these there is considerably less awareness of industry activities, and a greater reliance on elected representatives and professional

staff to deal with industry issues, leaving growers to concentrate on their own business operations.

From the levy-payer point of view the main determinants of a “good” industry-good investment are that it makes a direct contribution to the bottom line of the farm, and that it is grower-driven.

Perhaps not surprisingly then, the industry-good investment area most strongly supported by industry participants was research and development, although most of the participants when asked to identify “good” industry-good investments recalled specific projects rather than categories of expenditure.

The degree of support for different types of research is influenced by a number of factors. These include the time horizon of benefits, the ease with which research outcomes can be incorporated into the farming system; the extent to which privatisation of research benefits is likely to occur; and levy-payer perceptions of market and social issues. Examples of these differences include:

- *Disease and pest control:* Research programmes in this area were most frequently cited as examples of “good” industry-good investments. The impacts and risks associated with pests and diseases are clearly understood and accepted by most producers; the outcomes of research are typically easy to incorporate into existing management systems and adoption results in immediate increases in producer-returns. Consequently, research that will reduce the costs of control, or achieve better control, is usually well-supported and often accounts for a high proportion of research funding, particularly in smaller industries.
- *New genetic material/ product development:* This type of research typically requires medium to long-term investment, and rates of adoption may be relatively slow if existing farming systems must be changed significantly. However, some levy-payers have reservations about longer term programmes like plant breeding because the benefits would be realised by the next generation of growers rather than by the ones that had provided funding. Some New Zealand industries are reducing levy-funded support in this area since the development of Plant Variety Rights (PVR). Systems that allocate property rights over genetic material have created opportunities for individuals, or groups of growers, to capture the benefits from private ownership of unique genetic material. This is further enhanced by the increased sophistication of consumer markets and supply chains, which create opportunities for growers to compete with each other.
- *Environmental research:* An increasing proportion of research funding is directed towards addressing the environmental externalities associated with agriculture, and the development of practices associated with the amelioration of their impacts. The benefits of this research are not usually realisable in the short-term and a range of value-judgements about the nature and extent of the impacts, responsibility for the problem, and distribution of benefits influences attitudes to investment in this area. While longer-term issues such as global warming and other environmental issues were recognised as gaining importance by most groups, they are regarded by many as issues to be addressed at a higher level than the industry organisation – i.e. by government or an umbrella group rather than by individual product groups.

Most of the levy-payer concern about these issues was expressed in terms of maintaining the right to farm. Not unexpectedly, this was most important to the dairy group who felt that both the industry organisation and regional and central government should be working to change public perceptions and reduce costs of compliance with environmental regulations.

Attitudes to expenditure on promotion as an industry-good differed, but often reflected the extent to which the industry is associated with a clearly identifiable processing sector. Only in the meat and wool group was there discussion of the fact that spending money in the export sector may bring larger returns than addressing production issues.

The value of, and necessity for, on-going investment in market access was discussed by growers from some industries and the need for more, or better quality investment in education and extension by others.

Overall, it was felt that growers lack the knowledge and information to evaluate specific investments and that they must rely on industry organisations to invest levy funds wisely.

The Evaluation of Industry-Good Investments

There is a very large body of literature devoted to the economic analysis of both research and promotional activity. However, no single analytical approach that can be used across all investment types to guide those making industry-good investment decisions, or even for the evaluation of a specific category of investment e.g. research or promotion, was identified. The types of industry-good investment most commonly undertaken by New Zealand land-based industries are research and development, promotion, market access including biosecurity and food safety, and investments that might loosely be called communications. The latter include education/training, the provision of information to members, and advocacy on behalf of the industry.

Evaluating Research Investments

The selection of method for evaluating research investments is influenced largely by the level of aggregation and the research question posed. The approaches that were identified in a review by Norton and Davis (1981) can be broadly grouped under three main headings

- *The aggregate approach:* Many ex-post studies and some recent reviews have estimated the long-term benefits of government-funded research by examining the annual pattern of changes in agricultural productivity at the national or State level over several decades. Regression models have been developed that relate these changes to investments in agricultural research and extension over a similar period, and estimates of the rates of return to research are derived from regression coefficients. A number of such studies are summarised in Fuglie and Heisey (2007). This approach is not suitable for evaluating particular projects or specific industries.
- *The partial equilibrium approach:* The work of Alston *et al* (1995) provides an overview of a widely used approach that evaluates the social costs and benefits of individual projects by examining the project's impacts on the supply and demand relationships and market equilibrium for specific

products. The partial equilibrium approach has proved to be extremely flexible and has been widely used to analyse a range of issues related to research funding for agriculture. As well as applied studies of particular industries and actual investments, it can be used to enhance understanding of the broad parameters and factors that influence the effectiveness of investments since models can include the trade-offs between activities as diverse as promotion, information and food safety, and market access. However, although the partial equilibrium approach can be used for both ex-ante or ex-post evaluation of research investments, it is dependent on estimates of the impacts that the research would be expected to have on the fundamental supply and demand relationships in the industry. The partial equilibrium approach does appear to be useful in providing a preliminary analysis of the expected impacts of research and a wide range of other industry investments. However, model development is likely to require expertise from outside the industry organisation or specific project team, and be too costly for smaller industry organisations.

- *The farm level approach:* A third important approach to evaluating the costs and benefits of industry-good research is the assessment of the costs and benefits at the farm level. This involves modelling and understanding the typical farm system, the role of the research and its impact on subsequent returns to individual producers. This approach is well described by Pannell (1999) who identifies two sets of on-farm changes that are usually the outcome of research and associated extension activity. These can be broadly grouped as changes in technology which lead to changes in enterprises, production, costs, quality or risk, and changes in information that result in improvements in adoption rates, management systems and reduction in risk. The approach evaluates only the costs and benefits of research plans and investments to the industry itself, and provides considerably clearer guidance to industry organisations than the other approaches described.

Evaluating Promotion Investments

While there are some parallels in the aggregate evaluation of research and promotional activities, there are significant differences in their impacts. There is a range of techniques used to gauge market reaction to spending on generic promotion. These include the development of complex econometric models and many approaches to examining consumer preferences, including the analysis of electronic data from supermarket check-outs. The National Institute for Commodity Promotion Research and Evaluation (NICPRE) based at Cornell University undertakes work associated with the commodity check-off programmes supported by the United States Department of Agriculture, and has employed a wide range of these techniques. NICPRE's work provides a useful overview of some of the techniques and approaches which have been used in evaluating generic promotion. Typically, studies involve tracking promotional expenditures and any associated changes in per capita consumption of the relevant product. The data obtained from approaches such as these can then be used in estimating the shifts in demand associated with promotional activities in order to estimate their benefits using a partial equilibrium framework.

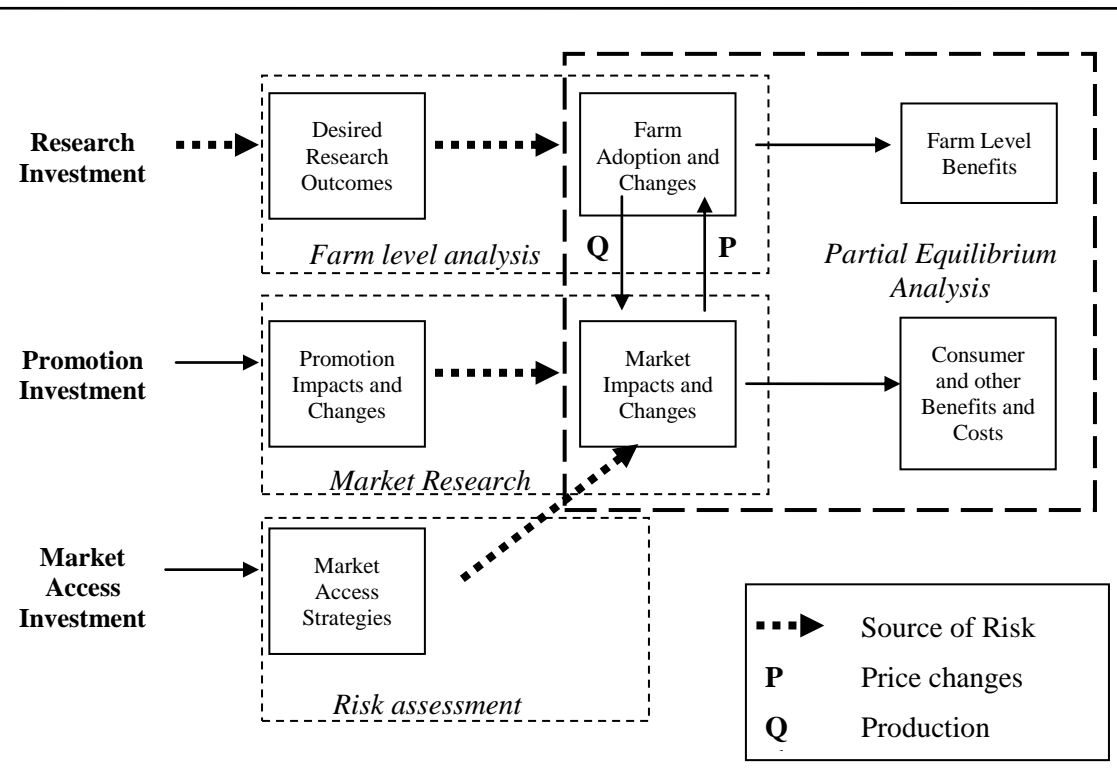
Other Investments

Other major areas of investment include those related to market issues including market access, bio-security and food safety which are of increasing importance in world food markets. The majority of industry costs in these areas are related to monitoring activities and the establishment of industry standards for product quality and management practices. Sophisticated risk analysis techniques are required for evaluation of these investments to identify a number of factors, such as the risks of biosecurity incursion, market closure or opportunistic behaviour on the part of business operators, which are extremely difficult to quantify and open to debate.

The costs and benefits of extension activity are usually evaluated in conjunction with the research investment to which they relate. However, significant measurement difficulties are encountered in the evaluation of other types of communication investments, which can accrue over long periods with substantial variation in the extent to which they are realised by individual industry members. The fact that, internationally, most industry groups employ levy funding in communication investments indicates that the individual participants in those industries must value these activities, although they may be particularly hard to quantify. The assurance of positive net benefits probably comes from the fact that they are usually relatively low cost, and provide a wide spectrum of possible benefits to levy-payers.

Evaluating the distribution of benefits and costs for any investment is theoretically possible, but in order to do so the sources of benefits, their timing, and the nature of the risks involved must be understood. The responses that must be understood in order to quantify or analyse the impact of any individual investment are often complex and the appropriate analytical approach to be used in evaluating a particular investment activity will vary with the nature of the investment. The relationships between the approaches are summarised in Figure 1.

Figure 1: Analytical Approaches to Evaluating Investments



The common element in the analyses is the partial equilibrium evaluation of the impacts on consumers and producers. However, the literature review highlighted the complexity and cost of determining the impacts of industry-good investments on total industry supply or demand. This combined with the fact that such analysis includes the costs and benefits to both producers and consumers, means that in practice such analysis provides little guidance in investment planning for industry organisations whose primary responsibility is to their stakeholders.

A Planning Framework for Good Industry-Good Investment

Organisations operating under the CLA plan their investments in a difficult environment. Budgets are determined by production levels and product prices and can be highly variable between years. The CLA itself limits industry organisations' ability to build up reserves between years to overcome some of the variability.

In traditional financial cost-benefit analysis the returns on competing projects would be compared, and those which showed the greatest rate of return would be selected in descending order of profitability until the budget was fully allocated. Specific measures such as the net present value, the internal rate of return or other related criteria are used as a part of this process. However, in the real world, and particularly in the land-based industries, a finite budget must be allocated among diverse range of competing investments – the portfolio problem. The process is complicated by the facts that individual stakeholders may have differing time horizons, product mixes and business structures and that investment opportunities in land-based industries are seldom completely independent of each other.

The review of international and local experiences of industry-good investment evaluation has shown that it is not feasible, either theoretically or practically, for New Zealand land-based industries to use a single analytical process or procedure to provide clear guidance on which industry-good investments will generate the greatest benefits for levy-payers.

However, the research and consultation has identified some guidelines for the improvement of industry-good investment decision-making that involve the clear identification of benefits sought by the industry and of the pathways by which those benefits are most likely to be realised.

Industry plans and priorities

The first step in the process is the development of a clearly articulated, annually reviewed, **industry plan** that sets out priorities and provides guidance to assist in decision-making over the medium-term. While many of the industries included in the study do undertake some strategic planning activity, it has not always been clear how this process contributes to the investment decision-making process. It can be argued that the test of a good strategic plan is the ability of that plan to guide critical decisions on priorities and to allocate scarce resources.

The nature and sophistication of these plans will differ between industries but the details of the process and the consultation processes involved are probably not as important as the key components of the plan, including its scope and the statements it makes about desired industry change.

The most important component of the planning process is the identification of a desired set of **industry outcomes** (*changes*) that can be influenced by industry investments, and which are most likely to benefit levy-payers. These should be expressed in quantitative terms and, therefore, measurable, and have clear time-frames in which to be achieved. Consultation during this process is critical to understanding the outcomes most important to stakeholders and the constraints on and impacts of, their achievement. While it is clear that individual levy-payers do not expect to be involved in the detail of reviewing proposals or assessing benefits, most expect to have the opportunity to consult on the planning and priority-setting process.

Another important component of the industry planning process is **the understanding of farm business structures and their relationship with other industry players**, since this will determine the impacts of different investments on industry outcomes. While it may not be possible to model farm and market behaviour formally in order to quantify these impacts in all industries, it is important for all key participants to have an understanding of the pathways or mechanisms that will eventually result in benefits to levy-payers and other participants. This obviously includes factors such as adoption rates, and the role of private investment.

Discussion of desired outcomes should also **identify priority areas of investment required to meet these outcomes**. Their definition should provide a guide to the types of change at the farm and industry level that would bring about the desired outcomes. For example, the planning process might identify that crop yields could best be developed by improving management practices with existing technologies, or by investing in improvement in genetic material.

Investment priorities for particular outcomes or benefits may not, in many cases, align with a single functional area of expenditure such as research, extension, or market access. Meeting the desired outcomes will probably require a mix of functional activities and possibly a combination of projects.

Industry leaders might also consider whether there are differences in the way in which regional or industry sub-groups are likely to be affected by such proposals and the implications of this. Where there is an obvious alignment of interest within and across industry groupings, opportunities for co-funding or collaboration should be explored.

The study developed a checklist of questions addressing these elements that should be asked and answered during the industry planning process, irrespective of the size and complexity of the industry. These questions can be answered without detailed analysis or, if resources permit, some or all of them can be subjected to such analysis.

Selecting the Best Industry-good Investments

New investment decisions, particularly in smaller industries, are constrained by the extent to which the industry is committed to on-going projects. They are complicated by the uncertainty of levy income associated with the industry's vulnerability to changes in markets, weather and other short-term factors. Notwithstanding these issues, the majority of industries do allocate funds each year to initiate new projects, and are able to review funding to existing projects in the light of new priorities.

The identification of clear industry outcomes and priority areas of investment will make it possible for decision-makers to develop more reasoned arguments when ranking individual investment opportunities. The decision-making process will be both more transparent and streamlined.

Elements of this outcome-driven approach can be seen in some long-standing industry investments such as the Meat and Wool New Zealand Ltd Monitor Farm Programme and in the farmer-driven initiatives that have been important in some industries in recent years. Its adoption at the industry-level is more recent and not yet widespread. Levy-payers' strong support for projects that generate clear short-term benefits at the farm level, such as pest and disease control projects and management practices that address specific immediate problems also reflects a desire to achieve particular outcomes via industry-good investment.

Rather than attempting to provide a quantitative ex-ante cost-benefit analysis, investment proposals would be required to demonstrate the expected contribution of the investment to the desired industry outcome and the pathway to achieving that contribution.

Adopting such an approach will have a number of benefits. Greater understanding of the various elements of particular outcomes would enable industry organisations to consider a wider range of options for sourcing and managing investment proposals. For example, rather than commissioning a single research provider to prepare a proposal to generate an outcome, industries may elect to involve different providers in the different investment areas required to achieve that outcome. In addition, consideration of all the expected outcomes of an investment is likely to highlight opportunities for co-funding of investment.

Understanding the pathway to achievement of outcomes and benefits will also highlight the importance and costs of the extension and communication activities that are a necessary part of any research investment. A focus on outcome-driven investment decisions will ensure that these costs are correctly attributed to the outcomes achieved.

The adoption of outcomes that are stated in a measurable way makes it possible to monitor progress towards them, and establishes an appropriate basis for any more formal evaluation of the costs and benefits of past industry-good investments.

Conclusion

It is recognised that industries that have implemented Commodity Levies vary considerably in size and scope but the approach described here can be adapted readily for application in industries of differing sizes and levels of investment funds.

The process for developing strategic plans and agreeing priorities in smaller industries may involve considerably fewer people, less detail, and less formal analysis than in large industries where complex strategic planning processes are already employed. It is, however, equally important that the process is conducted by smaller industry organisations, and that outcomes, targets and key investment areas are agreed. Participants in smaller and more focused industries often have more personal contact, better communication, and more awareness of industry issues than those involved in larger industries, but this does not substitute for, or remove the need for, some form of medium-term planning.

There may be considerable differences in the degree of analysis of investments between industries, but it is still important that industry leaders are able to explain from an industry perspective the longer term goals of investment activity and the manner in which a particular investment will benefit that industry. Many of the investments in smaller industries will involve a large proportion of the budget in any one year. Consequently, priority-setting and the understanding of trade-offs between investment options may be even more critical for them than for larger industries, which have more budgetary flexibility.

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