

I wish to address briefly just three of your eight terms of reference:

ToR3: The effectiveness of the current R&D model

ToR5: Impediments to efficiency

ToR6: Better models

ToR3: The effectiveness of the current R&D model:

Despite their publicity, none of the research corporations do research. They rely on researchers from organizations outside the corporations to do the research for them. Therefore their capacity to carry out research at anything near the cutting edge depends on their husbanding an intellectually capable human resource for which they are not directly responsible. Most have done this badly or, in the case of the animal based corporations, not at all. That is why, for example at the extreme case, the wool industry, there is practically no research being done at all. The chances of the industry gaining a breakthrough through its research is nil. There are demonstrations, recycling of old material, road-shows by consultants and "producer initiated" research, none of which has a hope of finding anything new that can make a significant difference to the industry.

In any modern industry the research sector and those in it consider themselves to be an integral part of that industry—they think the way the industry thinks, they bleed when the industry bleeds, they participate in its successes and they strive to come up with solutions that can improve the effectiveness or capacity of the industry. The Research Corporation model, or those who administer it, have killed this vital relationship to a greater or lesser extent so that researchers have, at best, the role of doing research that the Corporation contracts them to do and, at worst, act as technicians to come up with prearranged results that the Corporations want. The result is that the bright scientists have left most of the industries to do real research where they have some say in and some excitement about the research they do. Consequently the Corporations indulge in a lot of "development" whatever this may mean and marketing which is not their primary role and initiate almost no new research.

And large sums that were once dedicated to research are now absorbed in administration.

ToR 5 Impediments to efficiency.

In the early days of rural research funding, the staffs were small and the research funds were allocated to organizations that had dedicated scientists and researchers who did the work with very little direction from the funders. The unwritten understanding was that those who came up with results that were valuable continued to be funded and those that did not were not funded and everyone knew why. There were flaws in the system and the idea arose that there needed to be a more business-like approach and this led to the Corporation model. The Corporation model with its emphasis on commercial outcomes and so-called business approaches, changed all this. The staff of the Corporations grew enormously, researchers had less and less say in what they did and, in the end, how they did it. Instead of a collaborative approach, the relationship between Corporations and researchers became confrontational. Good researchers with bright ideas were discouraged and the staff of the corporations, most with little track record, became the desk-top researchers and, at the limit, researchers became their technicians.

Worse still, practicing scientists with specialist skills and knowledge well beyond those of the staff of corporations played little or no part in the decisions as to what research might be supported. Those decisions were usually made by people who were, frankly, incompetent to make them; accountants, consultants, economists and sometimes, farmers. There were flaws in the old system but, without question, they were less fatal and wasted less money than the newer Corporation model. If you are going to spend millions on research it seems sensible to have at least some competent scientists involved in the decision making. The Boards and a lot of the staff of most of the Corporations who spend money on science have had fewer and fewer respected scientists in their number. Most now have none at all. As a consequence they have made many silly and costly decisions based on a total lack of understanding of what

research is capable of, what are its limitations and who are the most capable people to do it. There are many examples, but the disastrous fiasco that has surrounded research into alternatives to mulesing in the wool industry is a glaring example.

ToR 6 Better models:

It is extraordinary that the most obvious model, that of a commercial research company such as Microsoft, Dupont, Dow, IBM and many others, has been completely and consistently ignored in the development of and subsequent modifications to the Rural Research Corporations. The very existence of these companies depends almost entirely on research and a constant stream of new products from this research. They are fiercely commercial in the way they develop and market their products but their approach to research is totally different. None of them uses the decision-making tools that drive their manufacturing decisions when it comes to making decisions about research. In fact, it is recorded that Dupont banned the use of benefit-cost analysis to decide on priorities for their research as long ago as 1925! Yet our Corporations are still trying to use benefit-cost analysis as a means of deciding on research nearly a century later. Dupont's reasoning (and that of the other companies was similar) was that it is impossible to put a sensible benefit on a research which has yet to be done. This simple maxim is all the more interesting when it is realized that it was the executives of Dupont who invented the concept of benefit-cost analysis and used it very successfully in the manufacturing and corporate side of their business. They argued further that even if, by some miracle, it were possible to predict the ultimate benefit of future research that would be only a primary benefit. They identified a secondary and tertiary benefit that would result from successful research. The secondary benefit was that the successful research team would have a higher chance of having further research success in the same area. The tertiary benefit was that that same successful team would position Dupont to respond profitably to changes in the external environment, (economical, political, physical) over which Dupont had no control. Putting a dollar value on these was considered impossible. The application of benefit-cost or other forms of analysis that require predictions of results that don't exist is, without doubt, farcical.

So what do these companies do when making decisions on the priorities for research? In a nutshell, they do three things:

- They make sure that the research is at the cutting edge. The most up-to-date possible
- They make sure that the research leader has a successful track record
- They make sure that the field of research is roughly in their field of business. If it is successful, they retain the option to change their core business to incorporate it but they give good scientists the right and scope to plot their own research paths.

An ancillary to these three simple rules is that the person or persons who ultimately make the decision to fund the research is the most technically and intellectually competent person available to do so.

Strangely enough, this model is not all that different from that operating when the Corporation model was introduced in the mid 80s.

That model was criticized and eventually replaced because it was thought to be open to nepotism, non-commercial in its direction, piece-meal, unaccountable and many other things. In retrospect, it delivered a great deal of new material on which modern agriculture is now based—arguably at a much faster rate than the present system—and without doubt, at a fraction of the cost.

If the R in R&D is to be taken seriously, then the present model needs a complete overhaul to bring it closer to the successful models used by the big commercial research companies, probably with enough checks and balances to head off the worst of the faults that were perceived to be a problem in the original rural research models. If they do not change radically their current approach to research then they might as well be honest enough to remove the R altogether.