A NEW APPROACH TO TECHNOLOGY TRANSFER FOR INDUSTRY

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SUMMARY

The size and diversity of the Australian meat processing industry puts major obstacles in the way of successful technology transfer. These are compounded by much of the research into the industry being carried out by public sector institutions and a general lack of commercial skills among researchers.

The Meat Research Corporation of Australia has established a new private company to complement its existing technology transfer programs. The new company, Australian Meat Technology Pty Ltd (AMT) forms a commercial link between the research institutions, particularly the CSIRO, and the industry.

AMT will be responsible for commercialising and selling the results of research projects including machinery developed by the CSIRO through its research programs into automated cattle slaughtering and boning technology.

AMT will also provide a means for smaller companies to undertake research themselves and to benefit financially from the resulting intellectual property.

Introduction

The Structure of the Meat Processing Industry

The Australian meat production and processing industry is very diverse in the number of operations, their geographical locations, the mix of species processed, and the number of companies participating in the industry.

Slaughtering is carried out by over 200 abattoirs spread over a wide geographic area. While most of these abattoirs also carry out boning, there are many stand-alone boning operations as well. Many of the abattoirs process cattle, sheep and pigs on the same site.

Ownership of the abattoirs is distributed widely among private companies, farmer cooperatives and State and Local Government authorities. More than 80% of the organisations own only one processing site. The largest of the private companies owns only eight abattoirs.

Communication of the results of research projects carried out on behalf of the industry is very difficult within this structure.

Relationship of the Research Institutions to Industry

Approximately 50% of all meat produced in Australia is exported and 86 abattoirs are licensed to export standard. An industry which competes so heavily in world markets must support a high level of scientific research and technological innovation. Research is necessary to increase processing efficiencies, improve product quality, counter the threats associated with exotic diseases and adapt products to satisfy rapidly changing consumer tastes.

In Australia, research into beef and sheep meat processing is largely carried out by public sector organisations such as the CSIRO, the universities and State Government Departments of Agriculture.

Private sector funding of this research is mostly channelled through the Meat Research Corporation of Australia (MRC). This funding comes from levies paid by the industry which is matched by Government contributions.

Pig meat research is funded in a similar manner by the Pig Research and Development Corporation.

This collective approach to the funding of research projects has arisen largely because the diverse nature of the industry has meant that the majority of the processor companies have not had the financial

resources to initiate research projects individually. Only a few of the larger companies currently fund and undertake research themselves.

As a result, research has frequently been conducted one step removed from the processing industry with limited direct communication between the researchers and the industry. Funding organisations such as the MRC have adopted policies and practices designed to overcome these difficulties. These are discussed below.

Lack of Commercial Skills among Researchers

Australia does not have a strong tradition of interchange of staff between research and industry. Career paths have tended to lie in one area or the other and industry has not employed many researchers. This means that researchers generally do not acquire commercial experience or understanding of the commercial world during their careers.

Researchers mostly have not sought commercial partners until the completion of their research work. With access to public funding there has not been the incentive to involve industry financially. Also, research institutions such as the CSIRO have been restricted from carrying out commercialisation on the grounds that industry rather than Government should be funding this.

Marketing of commercialisation projects is made very much more difficult in this case because many companies have little interest in funding these projects when they have not been involved in the development phase.

Compounding this situation are the almost universal conflicts between a company's need for commercial confidentiality and a researcher's need to publish results and between a company's need for quick results and a researcher's need to prove results to a high degree of precision.

All these influences create place obstacles in the way of successful technology transfer.

Some Solutions to the Technology Transfer Problem

In New Zealand and a number of European countries solutions to the technology transfer problems have been found by putting the research organisations firmly under the direction of the meat processing industries and in compelling the research organisations to obtain at least part of their revenues directly from industry through commercialisation and consultancy activities.

In Australia, where the research is firmly anchored in the public sector, these solutions have not been readily available. The CSIRO is required to earn 30% of its revenue from external contract funding which includes funding from organisations such as the MRC. The universities have been gradually starved of public funding which has led them to seek alternative sources.

The MRC has adopted a number of policies which have increased the commercial links between the processors and the research institutions.

It has encouraged industry involvement in research programs through Technology Transfer Advisory Groups where selected representatives of industry participate in the planning and conduct of projects.

It has also encouraged the formation of collaborative projects where a potential user of a particular technology is encouraged to work closely with the researcher and provide staff, facilities and practical and commercial expertise.

The MRC has also funded a section of CSIRO Meat Research Laboratory, the Technical Services Group, to provide information, advice and training on technical matters to the meat processing industry. Experienced advisers visited processing sites, answered enquiries, conducted training courses and distributed research reports and technology updates throughout the industry.

Despite all these measures being put into place, the MRC and the industry were still concerned that the rate of uptake of technology in the industry had not achieved satisfactory targets.

The Formation of Australian Meat Technology Pty Ltd

The MRC has now adopted an additional strategy to the improve the rate of technology transfer. Through a collaborative agreement with CSIRO, it established in December 1993 a private company, Australian Meat Technology Pty Ltd (AMT), to commercialise research projects and to undertake technology transfer. The agreement established a strategic alliance between CSIRO Meat Research Laboratory and AMT with CSIRO retaining its role in long-term strategic research.

AMT acquired the expertise and staff of the Technical Services Group from CSIRO. AMT is continuing the same functions of technology transfer to the industry by providing information, advice and

training on the applications of technology. It has added short-term applied research projects to these functions and the MRC will continue to fund the service at least until 1996. This has provided AMT with a sound financial base on which to develop the other commercial elements of the business which include a commercial consultancy operation.

AMT's mission is to help the Australian meat industry achieve and sustain internationally competitive standards of productivity and quality through the targeted introduction of cost-effective technology and practices into each stage of meat processing from the farm gate to the consumer.

AMT is an entirely commercial organisation. It is required to make a profit and therefore it must ensure that it provides services which the industry wants and is prepared to pay for. Survival is a strong incentive.

While the MRC is currently the sole shareholder in AMT, it intends to sell down its share holding in the company to less than 50% within three years. It has not yet been decided what the further ownership will be but it is likely to be a mix of industry partners and independent investors.

Commercialisation of Research

One of the key elements of AMT's business is to commercialise research and market the end products and to make a profit out of doing so.

As a specific example of how this will work, AMT has the rights to commercialise the products of the automated boning and slaughtering projects currently being undertaken by CSIRO's Meat Research Laboratory.

In the first of these projects to reach completion, CSIRO has developed an automated procedure for removing the ribs and backbone cleanly from a chilled forequarter of beef with a greatly improved yield over the usual manual boning process.

AMT's role so far has been to provide commercial project management skills to the last phase of the research project which is to produce a demonstration prototype. While AMT has provided the project management, CSIRO's product champion has remained in control of the day to day details of the project but has been responsible to AMT for achieving results on time and on budget.

AMT has also given guidance as to what form of final product would be most attractive to industry and would most satisfy industry requirements.

AMT will undertake the next phase of the project which is the development, in collaboration with a participating works, of a commercial machine. The first of these machines will be in place by the end of October 1994. AMT will have the machines manufactured externally but AMT will retain responsibility for the future marketing. Royalties will flow back to the MRC and to CSIRO.

AMT will also undertake short-term research and development projects directly in collaboration with industry partners. In a typical case AMT and the processor will share the costs of development and will share the revenue from the sale of the technology. In this way the processor will be able to recover the development costs more rapidly than it would by relying on the direct productivity improvements arising from the implementation of the technology. In this way, AMT will be providing an alternative to relying on the products of collective research projects. This will be a new concept for the Australian industry.

Conclusions

In Australia where the meat processing industry is very diverse in the number of operations and ownership and where the research institutions which do the bulk of the research are largely publicly funded, traditional methods of technology transfer do not achieve a rapid uptake of research results.

One method of achieving successful technology transfer is to introduce a commercial imperative so that the organisations undertaking technology transfer are required to make a profit from it.

The second is to ensure that the organisations work in partnership with the industry so that all the processors, rather than just the largest ones, are able to take advantage of the developments in technology.