Can a Farm Management Model be Developed in the Context of University Education and Research that Integrates Human, Economic, Technical and Ecological Components in a Sustainable Manner?

Discussion paper presented to the 2002 Farm Management Workshop, The University of Sydney, Faculty of Rural Management Orange NSW 2800 Australia

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Introduction

Farm management is an occupation and/or a profession that requires an in-depth review, in order to redefine the assumptions upon which it was established in Australia. The evolution of the agricultural sector, the increasing degradation of the earth resources, the conflicting political, social and economic issues of primary production, the questionable ethical values of modern science and farm technology, and the increasing number of occupations adopting professional strategies are among other reasons some of the arguments that justify this review. In this context a key role that tertiary education plays is influencing the paradigm that upholds farm management.

The University of Sydney, in this occasion of its Sesquicentenary celebration is facilitating the ***"2002 Farm Management Workshop: Issues, Needs and the Way Ahead"***, bringing together leading farmers, agribusiness related professionals, academics, researchers, extension officers and consultants to explore avenues that will ensure better ways for servicing the primary sector, mainly in terms of education and research.

This discussion paper related to farm management contains a summary review of historical facts, a listing of critical issues, and an exploration of an overall framework, as a broad reference setting for the Workshop discussions.

The Historical Facts

Farm management started in Australia as a disciplinary field of academic enquiry around the 1940s (Malcolm, 1990). Dillon (1965) led the development of farm management under the umbrella of agricultural economics. He latter acknowledged that "*farm management deserved a professional status as a separate entity because of the special characteristics of farm production and on-farm decision making processes"*. Dillon (1979) emphasised also the worthiness of the farm management framework - *using a systematic approach* - to conduct education, research and extension in the farming sector. He clearly highlighted around this time the importance of giving a professional approach for this emerging discipline, possibly as a step towards professional standing for the recently created Australian Farm Management Society (Ronan, 2002).

Historically it is evidenced that the establishment of farm management under the umbrella of agricultural economics produced a reductionist approach as to what was suitable for training farmers. The end result was its framing under a narrow perspective of production economics with a final outcome of reducing it to budgeting, planning and modelling. A degree in farm management would not be an independent entity from agricultural economics. On the other hand, Dillon saw the difficulties for survival of farm management under the umbrella of agricultural economics since this latter discipline was easily capturing research resources for sophisticated macroeconomic, quantitative modelling to the disadvantage of farm management (Dillon, 1987 pers. com.).

In 1973 Australia witnessed the establishment of the Australian Farm Management Society (AFMS) as a response from farm management practitioners disenchanted with the establishment of professional accreditation for farmers, an initiative undertaken by the Australian Institute of Agricultural Science, early in the seventies (Ronan, 2002, p. 2). This decision, and the continuity of an association of practitioners, that did not have interest in having professional status, definitely had a profound influence in the future development of farm management as a profession in Australia, limiting its development between 1973 and 1997 when finally the AFMS went into decline.

The 1990s saw an emerging opportunity for universities to re-adopt an educational model in farm management when all the colleges of advanced education (CAEs) were amalgamated with universities or upgraded to university status. With the exception of Orange Agricultural College, today the Faculty of Rural Management of the University of Sydney and Curtin University of Technology - Muresk, the remaining universities have either redirected the orientation of farm management education far away from the holistic integrative approach of business, economics and technology towards an applied science framework, or cancelled it as an independent educational program. A multiplicity of reasons have been argued for the radical readjustment of the farm management educational model. These included institutional budgeting reasons –i.e. science degrees attract more funding resources than management degrees-, lack of demand for farm management education, inadequacy of the current farm management educational model, and depletion of farm management research opportunities. At least in the case of the Faculty of Rural Management student intake has never been an issue of concern. However our hypothesis is that the limited research capabilities of the CAE structure denied to farm management the opportunity to be competitive in research at the university level. On the other hand, it is also argued that the funding organisations do not have a clear understanding of the scope and importance of farm management research; therefore diverting the allocation of research resources in an unfair competitive manner towards a more science-based oriented research framework.

The business nature of farm management was openly proposed to AFMS by Henry and Charry (1992) and Charry and Henry (1993) with an interest in generating a discussion that would allow the rescuing of farm management as a discipline and as a profession. However these attempts were dealt with indifference from AFMS. Charry (1997) reviewed the fundamental assumptions of farm business management as part of his doctoral research highlighting the importance of the business component as the core component of this integrative profession, and developed arguments to sustain his proposal.

Today the tertiary educational reality for the farming sector is a constrained demand for pure science oriented disciplines, while the supply is abundant. On the other hand, those institutions which have been able to keep the holistic, business and technology oriented curriculum, i.e. a farm business management framework and/or agribusiness (farm management) as an independent educational package, continue having an increased demand and sustainable student intake (e.g. Faculty of Rural Management, Muresk Institute of Agriculture and Marcus Oldham College).

The Critical Issues

1 Farm Management: The Challenge of Upgrading an Occupation to Professional Status

All the professions are occupations but not all the occupations have the power to achieve professional status (Anderson and Western, 1976; Mullins, 1976). This is probably the fundamental conflict of farm management where assumptions of professional status are made while historical facts indicate that representatives of farm management have opposed this status, either from the perspective of competitive professional associations or from university positions that have denied to farm management the opportunity to gain an independent professional status. Brennan and McCown (2001) referring to Dillon (1979) highlight that *there have been inadequate distinction between farm management (i.e. farmer's operational activity) and farm management (i.e. the professional activity).*

It seems that the conflict highlighted by Jensen (1977) in terms of the identity crisis of farm management in the USA between theoricism and empiricism was translated to Australia as practitioners vs. professionals, and it has been the fundamental reason that has inhibited/delayed the development of farm management as a discipline of enquiry. This conflict was early identified by Heady (1948) and Johnson (1955) and later in Australia by Dillon (1965, 1979), Henry and Charry (1992), Charry and Henry (1993) and Malcolm (1990, 2001) amongst others; however no radical solutions have been undertaken.

In his proposal of academic re-projection of farm management, Whiteley (2002, pers. com.) assumes its recognition as a profession. We wonder if this assumption is implicit or should be the subject of further discussion by the participants to the debate about the future of farm management. Universities traditionally support professional development through academic programs and awards. Where this is not the case, either the academic program should be reassessed in terms of academic standing, or the occupation should be challenged towards a professional status.

2 The Scope of Farm Management

We come from an ambiguous past where a non-professional association represented the interests of a conflicting discipline. At the university level, the scope of its contents for education and research purposes has been a contentious issue. Within agricultural economics farm management is simply recognised as farm economics, and today is in disrepute and seen as a second-class discipline. We wonder if the time has come to consider farm management in an independent manner, to explore its current meaning, and thereby to assert its relevance for the future of professional farming.

In order to enlighten this analysis a reference framework is given through the compilation of the more relevant perspectives of farm management found in the literature.

Dillon (1978) defined farm management as an holistic and human process for partial economic analysis to take the farming practice very far (cited by Ronan, 2002). It is clear that this definition closely aligns farm management on the side of farm economics.

Schapper (also cited by Ronan, 2002) states that farm management is the study of farm business decision-making rules for profit maximisation. This author is recognising the business nature of farm management where the economic issues are taken under a business perspective.

Ronan (2002) assimilates farm management to farm business management only after his time as president of AFMS. Ronan (2002) also highlights that a triple bottom line approach to management of natural resources is a key issue for farm management. Such a proposal encompasses new issues for an educational agenda in farm management where ecosystems management plays a key role, not in a competitive manner, but in a complementary manner to what farm management has traditionally being doing in the other components of the farming system model; an idea also supported by Robertson and Pratley (1998), Brennan and McCown (2001) and Kingwell (2002).

Makeham and Malcolm (1993) imply a definition of farm management encompassing management of technology and profitability into a business organisation, considering the human influences, external economic influences and the widely varying ecological conditions of farming.

Malcolm (1990) saw farm management as a multidisciplinary, uncertain and changing area where business management and agricultural technology combine, broaching the boundaries of agricultural economics.

Henry and Charry (1992) and Charry and Henry (1993) reviewed the evolution of farm management in Australian for educational workshops of the AFMS and approached farm management as *a multidisciplinary and professional decision-making activity to manage total farm resources (i.e. physical, economic, human and ecological) towards the achievement of individual and community goals in a sustainable manner.* Within this definition farm management is a systematic approach to the management of resources integrating the environment, the people, the production systems and the business management areas. Herein the concept of sustainability is extended to all the resource components and processes of the farming system, i.e. community, individuals, economics and finance, technology and ecosystem. Under this definition these authors explored the possibility to relabel farm management towards farm business management, as a first step in the process of re-orienteering the practitioners' association towards becoming a professional association.

Napier (2000, pers. com.) supported that the core component of farm management education is business; however he argued that through his world-view of "global village" today business management skills for farmers were not essentially different from those decision makers from other sectors of the world economy. From there, his strong emphasis was in directing farm management education towards a generic framework in business and/or management.

With the emerging of competencies for professional farm business managers, the Rural Training Council of Australia (1994) paved the way to overcome the historical conflict between empirical farming and professional farming practice. The Rural Training Council affirmed the label farm business management. Previously McColl, Robson and Chudleigh (1991) had envisaged that with the current changes in tertiary education in Australia, farm business management activities were expected to become a separate area of training, research and development. This is perhaps the reason why Chudleigh kept farm management as an independent academic program in the old Orange Agricultural College, though without provision of support to its further development and strengthening.

Curtin, Muresk Institute of Agriculture (2002) offers a clear agribusiness pathway with major in farm management as a competitive opportunity within a wide range of science and technology oriented majors.

Further perspectives of farm management can be found in Dillon (1979), Malcolm (1990 and 2001), Charry (1997), Brennan and McCown (2001) and Ronan (2002). Therein the issues of business as a core component of farm management integrated to crop and animal science, and the importance of ecosystems management as a part of the overall farm practice, and farming training and research are further extended.

3 Farm Management Educational Model

Kingwell (2002) suggests that in a time of change a farm management model for the future needs to have clear implications in training, research and advisory services. We wonder if this statement is really an indication that the development of farm management, and the recognition of its influence starts with the definition of an educational model. The first issue to evaluate should either be whether

this educational model deserves recognition *per se*, without its attachment to any established traditional discipline (e.g. agricultural science, agricultural economics, generic business and or agribusiness). Allied to this is whether it makes sense to train professional farmers in an education framework that is not integrative and holistic.

Also to be considered is the value of a science approach to education against a constructivist, experiential learning approach for training of rural professionals. Should farm management have an emphasis in technology (i.e. making it definitely a science oriented profession) or an emphasis in management with marginal science components (i.e. therefore opening it more towards an experiential learning exercise) ?.

It is considered that the re-structuring of farm management in the academic environment into broader rural and agribusiness courses has not been the consequence of demand, but a consequence of the identity crisis that farm management has faced in Australia, and the lack of a recognised independent educational model. Definitions about these issues will necessarily enhance the future of what is considered a worthwhile opportunity for training professional farmers, educators, researchers and advisors for the farming sector.

Discussion about an educational model for farm management and/or farm business management is a priority issue that will have a definite influence on the improvement of the teaching of farm management in our universities, so that it really grapples with the complexity of real farm issues in a complete manner.

4 Farm Management Research Boundaries

Doubtless an academic program has no guarantee of long-term success if it is not supported by a continuum of research outcomes. In the case of farm management, the research frameworks have switched from farm economics, production economics and quantitative modelling with different levels of complexity in a clear hard systems approach, towards soft systems methodologies of enquiry mainly dealing with the soft components of the farm system, i.e. social and ecological issues throughout action research. This is well identified by Brennan and McCown (2001). However, today it is increasingly becoming accepted that except for the strong science oriented research opportunities, mainly of technology generation type, the farm management scope for research is narrow and the research funding opportunities are limited.

In the 1960s and 1970s, when the international agricultural research centres were created around the world, Farming Systems Research (FSR) became a dominant research framework (Dillon, Plucknett and Vallaeys, 1978) . FSR is a farmer-based approach to research and development that includes the farmer in the generation, adapting, testing and implementing of farm technology and problem solving for technical, economic and environmental issues of the farming system (Charry, 1997). It was recognised at that time that FSR was not only a method of identifying on-farm research problems within a systematic/holistic perspective, but also that it could be the backbone of academic activities that use the systematic approach to training (Norman, 1980; Dillon and Anderson, 1984; Norman and Collison, 1985; Charry and Dillon, 1985).

FSR applies methods and knowledge from various disciplines to define the constraints on improvement and solve the problems at the farm level. In a sense FSR encompasses a typical systematic approach and holistic understanding of the factors, relationships and phenomena that operate at the farm level. FSR requires integrating knowledge across many discipline areas, i.e. the typical framework that has supported farm management.

Despite the traditional disciplinary organisation of science, the world does not in fact impinge on us in a disciplinary form. This fact provides one logical basis for using a systematic approach in attempting to enquire about performance of agricultural systems. Such an approach has profound methodological implications because in the case of farming it is offering a natural avenue to evaluate in an interactive manner the physical factors, human factors, economic factors and environmental factors that condition farm productivity and sustainability (Dillon, 1976, Charry, 1997).

FSR went into disrepute at the end of the 1970s (Dillon, Plucknett and Vallaeys, 1978). However today with the re-establishing of sustainable farming systems research (Brennan and McCown (2001), holistic management research (Savory, 1999), amongst others, the fundamental principles of network-integrated research are becoming operational again. It is likely that a revitalised FSR approach to research on farms might create a suitable platform for professional researchers in farm management to analyse actual farm problems. It is also clear that a FSR framework to farm management research will allow us to develop ideas about how we can learn from farmers about the heuristics of managing farms.

It is considered that other types of research, more science and technology oriented, would be relevant to farm management if this educational stream openly encompasses science and technology oriented majors, i.e. agronomy and animal science, or if it is integrated as a double degree.

5 Professional Consultancy in Farming: Where Should These Professionals Come From ?

Professional consultancy to the farming sector represents a meaningful stream where rural related professional are employed and exercise a definite influence in technology usage, farming systems selection, farm organisation, resources allocation and final profitability and sustainability of the farming operation.

Discussions about the best source for this type of professional consultant are not known and it is probably opportune to bring this issue to the discussion table: is farm management a suitable framework to train the professional farm consultants that are employed by farmers to help them making business and technical decisions ? If the professional framework of farming is an integrative and holistic approach encompassing physical, economic, social and environmental issues, is farm management the best option to train a professional farm consultant with an in-depth and flexible vision to farming in a changing world ?

On the other hand, it is important for the farm management stream to become more aware about what succeeds in the effort of professional consultants to assist farmers.

Integrative Sustainability and Farm Management

Sustainability is understood as the *capacity to uphold, maintain and/or rehabilitate* (Kemp, Charry, Whiteley and Gardner 2002) and *integrative sustainability refers to a new perspective of managing farm resources within a 4-dimension model, encompassing financial, ecological/environmental, social and dynamic time indicators* (Kemp, Michalk and Charry, 2001). As such educational, consultancy and research models for the primary sector should be designed keeping a broad perspective of areas and time frameworks. Napper (2001, pers. com.) suggests that the future of agricultural education and research for Australia under this framework should be attempted with a rescuing and re-invigorating of the USA Land Grant model.

Many farmers, agricultural scientists, social scientists, ecologists and members of resource management agencies have acknowledged for some time that solving the conflicts in resource use and

preserving resources for the benefit of future generations requires a more holistic approach to farm resources management (Bawden and Packham, 1991; Robertson and Pratley, 1998).

If farm management is going to have a re-endorsement as an holistic approach to decision making, business and management of earth resources, then farmers, researchers, academics and consultants must define the characteristics of a professional program integrative in nature that will service the needs of the primary sector of Australia.

Consequently, it is necessary to develop an education, research and extension/consultancy model in which different parties may work together to learn about alternative approaches for farming within the environment. This is a networking approach to farm enquiry to find out solutions for total sustainability of the earth resources and the remaining resources embedded in farming.

Concluding Remark

This paper had the aim to put forward some thoughts on background, critical issues and needs of farm management. However the way ahead, as the fundamental discussion issue, has been left untouched to ensure the best input from Workshop participants, related to the future of education, consultancy and research to better management of farms.

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