

A NEW DEGREE FOR LAND BASED INDUSTRIES AT MASSEY UNIVERSITY, NEW ZEALAND

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ABSTRACT

A brief description is given of the background, structure and management of a new Bachelor of Applied Science degree introduced at Massey University in 1994 to meet the changing needs of the primary sector industries. Examples are given of the flexibility of choice offered to students enrolling in the programme, with particular reference to opportunities in plant and pastoral science. Enrollment statistics for the first two years of the programme are discussed.

KEYWORDS

Tertiary education, agriculture, pastoral science, plant science

INTRODUCTION

Anderson (1995) defined the key elements of a University programme designed to meet the needs of primary sector industries as follows:

- Catering for a wide range of pre-entry backgrounds and abilities, and career development interests.
- Emphasising the integrated nature of natural resource, food and fibre systems, and the underlying principles of the disciplines contributing to such systems.
- Providing an environment to develop independent learning skills and a commitment to life-long learning.
- Providing scope for students to design, and take greater responsibility for, their own educational experiences.
- Fostering an awareness and understanding of the global economy and its impact on the primary sector.
- Recognising the need for student mobility between institutions, nationally and internationally, and for the transferability of credits.
- Promoting an interest in foreign cultures, including participation in internationalised degrees and diplomas.
- Dedication to excellence and professional competence, and to the development of leadership qualities.

These elements should be appropriate to tertiary education programmes worldwide. In New Zealand they assume particular importance because of the pressures on developed primary sector industries and on the Universities themselves. Reinforcing the continuing importance of the primary sector to New Zealand's overseas earning capacity are the needs to recognise consumer requirements for safe and hygienic food and fibre products, to be aware of new technical opportunities for production and processing of primary products, and to protect the vital natural resource base.

In 1994 these considerations led the Faculty of Agricultural and Horticultural Sciences at Massey University to replace five relatively heavily structured degree programmes in the sectors of Agriculture, Horticulture and Agricultural Economics with a single generic degree (the Bachelor of Applied Science) which was designed to meet the key elements set out above within the context of a strong central core, and to offer scope for a substantial degree of individual development within a flexible programme. The new degree involves increasing emphasis on student participation and self-directed learning at all levels. Postgraduate programmes at Honours, Diploma and Masterate level complement the three-year Bachelor programme, and articulate with the University's Doctoral programme.

THE BACHELOR OF APPLIED SCIENCE DEGREE

The Bachelor of Applied Science degree is a three-year terminating programme requiring the attainment of a minimum of 300 points (credits). It operates within the context of a two-semester academic year, with increasing emphasis on a suite of academic papers built on 10-point, one semester modules. The general structure of the degree (Figure 1) provides for a compulsory core of subjects for all candidates equivalent

to 30% of total credits, a further 40% of credits defining major areas of endorsement within the programme, and the remaining 30% of credits available for elective papers which may be selected from any of the University's degree programmes.

The core subjects for the degree focus on the basic requirements for communication and numeracy skills, appreciation of the basic science disciplines, an understanding of the place of agriculture in modern society and in commerce, and ability to evaluate and coordinate complex issues and work effectively in group contexts. The culmination of this core programme is a "Capstone" paper in the final semester which requires students working in groups to pool their resources and knowledge to solve complex "real life" problems which take no account of specific curriculum backgrounds.

The major areas of endorsement for graduation within the degree programme are:

- BAppSc (Agriculture)
- BAppSc (Horticulture)
- BAppSc (International)
- BAppSc (Natural Resource Management)

The Agriculture endorsement is deliberately broad-based in concept, and requires that students complete at least one 10-point paper from each of the six main disciplines within the Faculty (Soil Science, Plant Science, Animal Science, Agricultural Engineering, Agricultural Economics, and Systems Management) in the basic 40% endorsement credits. The Natural Resource Management endorsement is a new development for the Faculty, and requires the completion of papers in Biological and Physical Sciences, Engineering and Technology, Economics, and Planning and Law in addition to the series of Faculty core papers. The International programme, requiring an element of international exchange, was introduced in 1996. A new endorsement in Forestry, with emphasis on farm forestry enterprises, has been introduced for the 1997 academic year.

In addition to these broad-based endorsements, it is possible for students who have well-defined objectives to take clearly specified programmes of specialisation (*eg.* in Agribusiness, Animal Science, Rural Valuation, Plant Science or Landscape Management) which meet defined career requirements. Finally, students who can make a case to do so may opt for a general (personal) degree programme which allows complete flexibility of choice outside the core programme. In principle, the structure of the degree provides students with the opportunity to move between endorsements or areas of specialisation with the minimum of credit penalty, an increasingly important issue as student fees increase to balance declining Government support. In this context, a student with a particular interest in pastoral science may choose to develop general capability by taking up to 50% of total credits in applied plant or animal science within the Agriculture endorsement, a more specifically science-based combination of papers through the Plant Science specialisation or, given the right commitment and science background, up to 80% of total credits in applied and basic plant science through the Personal Course opportunity in the unendorsed programme.

INITIAL EVALUATION

We have now had two year's experience of enrollment for the BAppSc degree and, because many students originally enrolled in the superseded degrees chose to transfer, the first set of graduates were awarded their degrees in 1996. Total enrollments in the three-year degree increased by 11% from 1995 to 1996, from 605 to 672 students, the large majority of whom (87% over the two years) were internal (resident) students. Of the enrolled students, 40% were women.

Table 1 shows the proportions of students enrolled in the available endorsements and specialisations over the two years. The presentation hides some shifts between years, but the time frame is too short to attach particular significance to the changes. The Agriculture endorsement and the unendorsed (general) programme dominate the enrollments. The Agriculture, Horticulture and National Resource Management endorsements are all relatively broad-based programmes. Enrollments in these endorsements reflects the emphasis on breadth in the more heavily structured degrees which are now superseded. The majority of the students interested in pastoral science have opted to work through the Agriculture endorsement, the Plant Science specialisation so far appealing primarily to students with more specifically horticultural interests.

The popularity of the General option reflects the wishes of up to one-quarter of students who prefer to construct a degree programme suited to their individual needs and interests. In most instances the “personal packages” are carefully thought through based on the advice and counseling provided by academic staff, evidence that many students are prepared to take responsibility for their own educational experiences.

There is still a need for students and teaching staff to adjust to the new opportunities offered by the flexible degree structure, and the greater demands placed on self-directed learning and collaborative development. Nevertheless, the early increase in enrollments is indicative of developing interests in the degree, in contrast to the declining rolls in “agriculture” being experienced by many tertiary institutions round the World.

REFERENCES

Anderson, R.D. 1995. Science, technology and education - the challenge to education. *Agricultural Science* 8: 37-40.

Table 1

Distribution of enrollments in Bachelor of Applied Science endorsements and specialised programmes in 1995/1996

Total students enrolled (2 years)	1277
Distribution of enrollments (%)	
Endorsements:	
Agriculture	24.0
Horticulture	13.3
Natural Resource Management	10.5
Specialisation within unendorsed degree:	
Agribusiness	3.3
Animal Science	12.0
Landscape Management	4.5
Plant Science	1.7
Rural Valuation	7.3
General	22.9

Figure 1

Bachelor of Applied Science : typical degree structure.

