

Enrolment Trends in Canadian Faculties of Agriculture

Ian Morrison¹

Canada's eight Faculties of Agriculture, like their counterparts elsewhere in the developed world, have encountered declining undergraduate student enrolment in most programs including agricultural and resource economics (AGRE) and agricultural business management (AGBUS). From 1996/97 to 2002/03, total student numbers declined by nearly 25%. Enrolment in AGRE and AGBUS programs declined about the same amount. This occurred when total student enrolment increased by close to 20% nationally. Recently released Statistics Canada figures for 2000/01 and 2001/02 indicate that year over year enrolment in 'Agriculture, Natural Resources and Conservation' decreased by 3.8%, compared to increases in fields such as 'Computer and Information Sciences', and 'Business Management' of 6.1%, and 5.0%, respectively. In face of declining enrolments and shrinking resources, Agriculture Faculties responded by introducing new degrees and majors, increasing student recruitment activities and re-branding exercises. The downward enrolment trend appears to be arrested as data for 2003/04 shows a 4% increase compared to the year before, with a further 6% increase observed in 2004/05.

1. Introduction

The 'Canadian Faculties of Agriculture and Veterinary Medicine', an organization consisting of Canada's eight Faculties of Agriculture and four of Veterinary Medicine (CFAVM; <http://www.ccfavm.ca/>), has been tracking enrolment trends in undergraduate agriculture programs since 1996/97. From west to east, the eight Faculties of Agriculture are as follows:

- University of British Columbia
- University of Alberta
- University of Saskatchewan
- University of Manitoba
- University of Guelph OAC
- McGill University
- Université Laval
- Nova Scotia Agricultural College.

Each of the faculties differs in the way in which their bachelor's degrees are structured and in the range of programs and majors offered. Some offer several separate bachelor's degree programs, e.g. the Universities of Alberta and Guelph, whereas others like NSAC offer only B.Sc. (Agr.) degrees. Almost all offer degrees in Food Science, but only four offer degrees in Human Nutrition/Dietetics. Some offer programs in environmental sciences and others do not.

2. Methodology

Altogether the eight Faculties offer over 30 agriculture programs or majors, although in many cases the differences among programs are more in the name than in content. For the purposes of tallying enrolment on a program by program basis, similar offerings

¹ Professor of Agronomy and Cropping Systems, formerly Dean, Faculty of Agriculture, Forestry and Home Economics, University of Alberta, Edmonton, Alberta, Canada T8C 1G4. Currently Visiting Scientist, Agricultural Production Systems Research Unit, 203 Tor St., Toowoomba, Queensland 4350.

from different universities were grouped, e.g. B.Sc. in Agriculture/Food Business Management and B. Comm.(Agricultural Business), and Natural Resource Management and Resource Conservation.

For the most part, in compiling the enrolment data only programs that include significant agricultural content, i.e. those that meet the accreditation standards of the Agricultural Institute of Canada/ l'ordre des agronomes du Québec (<http://www.aic.ca/agrology/accreditation.cfm>) were considered. This means that the data included from each of the eight Faculties does not represent their total enrolment; rather it represents student numbers in core agriculture programs. For example, the Ontario Agriculture College at the University of Guelph (U of G) offers a B.Sc. in Agriculture with majors in Animal Science and Horticulture. It also offers a B.Sc. (Honours) in Animal Biology and one in Plant Biology. The former are included in the compilation but the latter are not. The U of G also offers a B.Sc. in Agriculture with a major in Agricultural Economics and a B. Comm. in Agricultural Business. In this case, both are included. Enrolment data for those faculties that offer B.Sc. degree programs in Food Science, Foods and Nutrition, Food Engineering, and Nutrition and Dietetics were compiled but tallied separately from the agriculture programs.

3. Results and Discussion

Overall, from 1996/97 through 2002/2003 the trend in agriculture program enrolment and numbers of graduates was downward as typified by the University of Guelph where the proportion of students graduating from OAC relative to the rest of the University declined from about 14% of graduates to approximately 10%. Within that Faculty, the decline in the proportion of students in B.Sc. (Agr) programs was even more marked, declining from about half the students in 1996/97 to less than one third in 2003/04, continuing a trend that was established in the early 1990's.

A similar reduction in relative numbers of students compared to other faculties was observed in Alberta where undergraduate enrolment in the Faculty of Agriculture, Forestry and Home Economics changed from about 8% of the university's undergraduate student population to close to 6%. The consequence of this was that the Faculty budget, as a percentage of the total university budget allocated to faculties, was also reduced. While part of the reduction in relative student numbers could be attributed to a reduction in agriculture program enrolment, part could also be attributed to a softening in numbers of students enrolling in the B.Sc. (Environmental and Conservation Sciences) degree program. This program was initiated in the early 90's to attract more students to the Faculty to offset static enrolment in agriculture programs that was becoming evident even then.

Nationally, from 1996/97 to 2002/03 the number of students enrolled in bachelor programs in agriculture declined by 25%, from 4520 to 3379 (Figure 1). At the same time enrolment in Canadian universities was showing marked increases, with the Association of Universities and Colleges of Canada reporting a 21% increase in enrolment from 1996 to 2002 (C. Betke, personal communication).

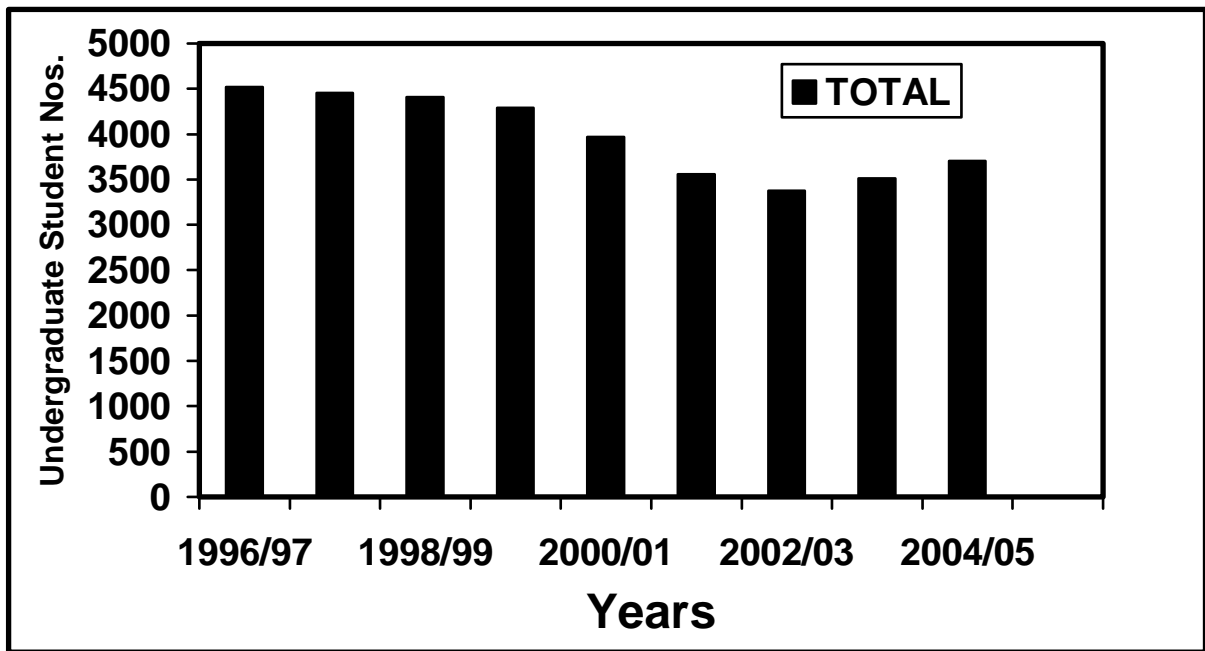


Figure 1. Undergraduate student enrolment in agriculture programs in Canada's eight universities represented by the CFAVM

Statistics Canada reported that in the five years from 1997/98 to 2001/02 undergraduate enrolment increased by 54 400 students, or 8.6%. Breaking the information down by discipline and showing just one year's change in enrolment from across Canada underscores the difficult situation facing faculties offering programs in 'Agriculture, Natural Resources and Conservation' (Table 1).

Table 1. Enrolment in Canadian universities by fields of study.*

Discipline	2001/02 ('000's)	% Change 2000/01- 2001/02
Humanities	127.3	4.8
Business, Management & Public Administration	143.7	5.0
Mathematics, Computer and Information Sciences	46.0	6.1
Architecture, Engineering & Related Technologies	76.2	7.2
Agriculture, Natural Res. & Conservation	14.8	- 3.8
Health, Parks, Recreation and Fitness	81.2	8.9

* Statistics Canada "The Daily" posted 30 July 2004

<http://www.statcan.ca/Daily/English/040730/d040730b.htm>

Clearly this represented a serious problem for faculties where agriculture is one of the mainstays.

Enrolment in Agriculture and Resource Economics programs declined through the nine years with increases in Agricultural Business programs providing a partial offset up to 2000/01. Thereafter, student numbers in both programs declined until 2004/05 when there was a modest recovery in numbers of students in Agricultural Business programs only.

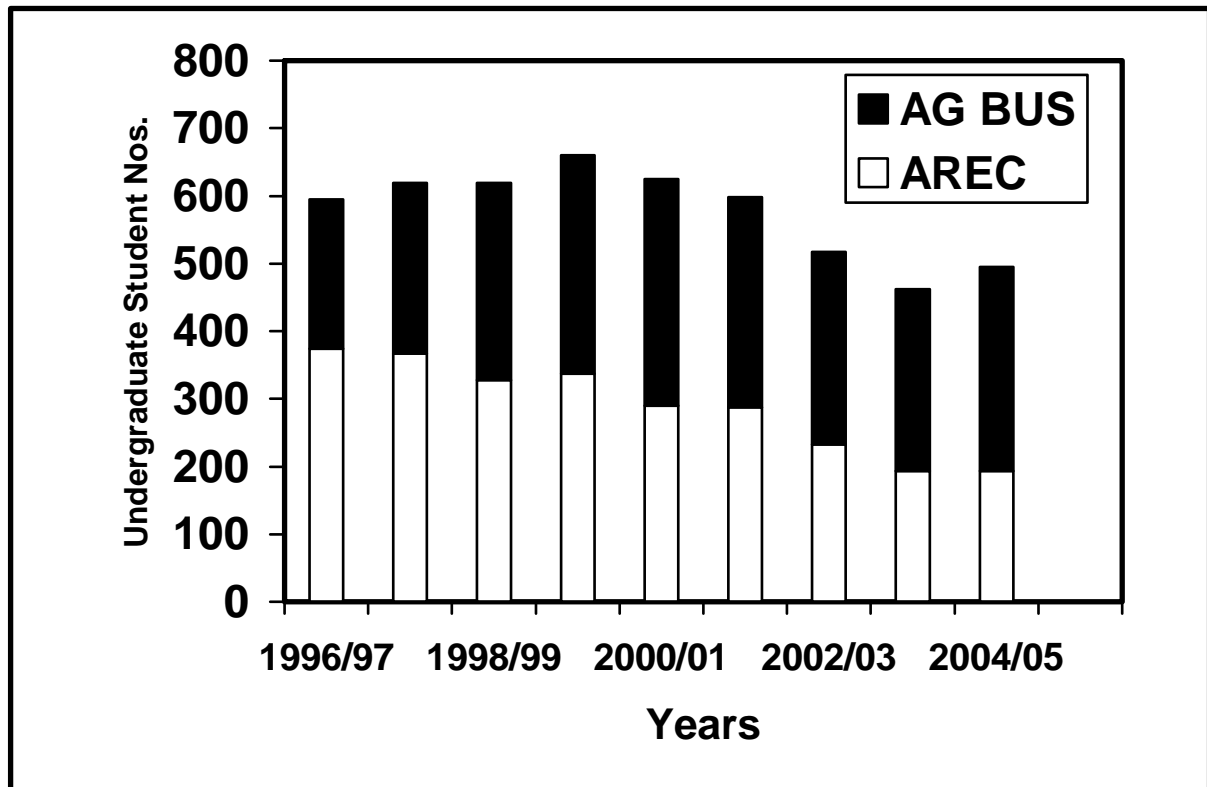


Figure 2. Undergraduate student enrolment in Agricultural Business Management (AG BUS) and Agriculture and Resource Economics (AREC) programs in Canada's eight Faculties of Agriculture represented by CFAVM.

In some Faculties enrolment in newer programs such as the Environmental Economics and Policy major within the B.Sc. in Environmental and Conservation Sciences (ENCS) program at the University of Alberta appealed to some students, but not enough to compensate for the reduced interest in the more traditional agriculture programs. In 2004/05, of 303 students enrolled at U of A in the ENCS degree, 27 have declared Economics and Policy as their major, compared to 161 in Conservation Biology and 86 in Land Reclamation.

Animal Science (including pre-vet), agronomy, and crop/plant science majors still constitute a significant proportion of students in agriculture whereas student numbers in some specialized majors such as soil science, pest management or crop protection, and agricultural chemistry have all but disappeared. Indeed, some faculties no longer offer these programs because of lack of demand and have replaced them with new degrees or majors in agroecology (U of M, UBC) or environmental biology and resource conservation (McGill). While these are reasonably well subscribed and may have helped retain some students, they have not resulted in enrolment surges like those observed in other faculties e.g. Science, Engineering and Business, in Canadian universities or in programs such as Nutrition and Food Science that has nearly doubled

in numbers over the past 9 years. In CAFVM faculties, in 2004/05 over 1800 students were registered in foods and nutrition programs, with only a very small minority specializing in food market analysis or food business management. With substantial growth occurring in Canada's value-added food and beverage industries and in the food service sector there might well be an opportunity to attract more students into these areas.

The reasons for declining enrolment in agriculture programs are difficult to pin-point but the following are among the factors at play:

- a reduction in numbers of farm families - traditionally the main source of students choosing to study agriculture,
- a (mistaken) sense that agriculture faculties focus principally on primary production and are not 'high-tech',
- the notion that agriculture is not 'green',
- negative perceptions regarding profitability and future of the industry and,
- competition from other institutions, e.g. four-year applied degrees at colleges, and other universities and faculties both in terms of program offerings and recruitment efforts.

Declining enrolments, and concomitant reductions in budget allocations, provided compelling reasons for Faculties of Agriculture to add new programs, modify current ones, and aggressively recruit new students. As intimated previously, most responded by introducing programs related to the environment, a good example being the interdisciplinary B.Sc. in Environmental Studies at McGill University. Initially these boosted numbers but are now softening in demand. Perhaps the most radical changes occurred at the University of British Columbia where the whole of the undergraduate program was revamped with new degrees in Agroecology, including an emphasis on rural community development, and Global Resource Systems replacing the traditional B.Sc. Agriculture degree.

All Agriculture Faculties significantly increased their recruitment efforts, consistent with a general trend among Canadian universities to either attract more students or to attract more students with higher academic standing. To a considerable extent this necessitated a re-branding of Faculties of Agriculture to dispel some of the issues identified above.

A number of different tactics were employed, including

- appointing dedicated recruitment officers,
- deploying 3rd and 4th year students as faculty ambassadors, especially to schools in rural towns,
- developing closer links with industry partners, particularly in providing co-op and internship placements,
- increasing the numbers and amounts of scholarships and bursaries, primarily leadership awards for first-year students,
- widening the distribution of updated, quality recruitment brochures along with corresponding investment in website development,
- focusing on job opportunities and career paths that provide a good livelihood and lifestyle, and

- convincing academic staff that they have a shared responsibility for student recruitment and retention.

The extent to which any one or all of these tactics helped to arrest the downward trend in enrolment is difficult to quantify. Other extenuating circumstances, e.g. raised admission standards in other faculties, might also have had an influence but whatever the case, undergraduate student numbers in agriculture programs, including agricultural business management (but not agricultural and resource economics) have increased in the past two years. In the current academic year, 2004/05, overall numbers are up by nearly 10% compared to two years earlier. Clearly, for the Faculties of Agriculture this is a positive and welcome trend.

4. Acknowledgements

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