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The Secretary

Senate Education, Employment and Workplace Relations Committee

P O Box 6100

Parliament House

Canberra ACT 2600

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**Higher Education and Skills Training to Support Future demand in Agriculture
and Agribusiness in Australia**

Dear Sir

This submission provides information about our organisation, some background which we consider relevant to the present inquiry and some comments and recommendations for consideration by the Committee.

The Australian Academy of Technological Science and Engineering

The Australian Academy of Technological Sciences and Engineering (ATSE) is an independent, not-for-profit organisation. Its Fellowship, composed of more than 800 outstanding scientists, technologists and engineers, drives its mission – to foster excellence in technological sciences and engineering to enhance Australia's competitiveness, economic and social wellbeing and environmental sustainability. ATSE provides independent, robust, evidence-based policy advice and a national forum for discussion and debate of issues critical to Australia's future. ATSE spans the highest levels of scientific and industrial endeavour in Australia relevant to agriculture and agribusiness.

Background

Agriculture and agribusiness in Australia is in a period of rapid transition. New technologies are playing an increasingly important role. There are a number of factors that are impacting on the current supply of skills in agriculture and agribusiness. While these include education and training, other factors such as demographics (the ageing profile of landholders), investment finance (most owner-operators are small and cash-poor and have not been able to afford investment in new technologies), and a lack of understanding of markets on the part of producers, labour rates (especially in food processing) have reduced Australia's competitiveness. Agriculture and agribusiness are crucial to meeting the growing international challenge of food security.

Australia's agriculture and agribusiness sectors need inputs from disciplines as diverse as botany, zoology, geography, econometrics, mining, water science, mechanical engineering, chemical engineering, food technology, forestry, fibre science, DNA profiling, reproductive technologies, fermentation science, veterinary science, plant pathology, entomology, molecular biology, nanotechnology, and so on. It is no longer possible to encompass all these disciplines in a single university faculty or department. Thus it is important to recognise that a number of university faculties and departments provide graduates to the agriculture and agribusiness sector. One possible reason for the reduction in the number of university faculties of agriculture in recent years could be the rising contributions of other faculties to meeting the needs of the sector.

ATSE comments and recommendations to the Committee

TOR 1. Funding and priority given by governments at federal, state and territory level to agriculture and agribusiness higher education and vocational education and training

- HECS discounts for 'science' should include agricultural science
- CSIRO and State Departments should continue to conduct agricultural research and research training in conjunction with universities
- Scholarships should be tied to joint research work, with research training that provides a career path for graduates
- Technical aspects of agriculture need specialized support in vocational colleges

TOR 2. Reasons and impacts of the decline in agricultural and related educational facilities

- To meet the ongoing and ever-changing challenges of agriculture and agribusiness, a breadth of knowledge and understanding is required to integrate, communicate and apply science and technology in specific environmental and economic conditions
- Agricultural faculties require support for the highest level scientists who can integrate diverse fields and can form research alliances with staff from other faculties
- There is a need for a national commitment to sound rurally-based agricultural education

TOR 3. Impacts of any shortage on agricultural research

- There has been a reduction in the quantum of research outputs in agriculture
- International professional work by Australian agricultural researchers has declined
- Other countries, most notable China, far exceed Australia's commitment to agricultural research

TOR 4. Economic impacts of labour shortages on Australia's export oriented agricultural industries

- Australian agriculture suffers from a shortage of investment capital to use research outputs
- Declining investment in agricultural research and education is limiting Australia's ability to export agricultural outputs to a world facing food shortages

TOR 5. Incorporation of animal welfare principles in agriculture education

- Animal welfare is already addressed in agriculture education

TOR 6. Solutions to address the widening gap between skilled agricultural labour supply and demand

- Investment in practical (TAFE/college) courses for good students is needed
- More effort is required to attract students from rural regions into agriculture
- Agricultural faculties need support to reorient in order to build high level integrative knowledge, and increase interaction with specialists in other faculties and universities

Yours faithfully

Robin Batterham