

## Submission re the Agricultural Competitiveness Issues Paper

I commend The Minister for Agriculture, Mr Barnaby Joyce for initiating a discussion on matters pertaining to food security in the Australian context.

I wish to offer comments which relate to the Issues listed in Table 2 and the questions listed in Box 2 of the Issues Paper.

### Issue 1. Ensuring Food security in Australia and Globally.

**Comment [CSR1]:** Aust own food security can not be taken for granted. This needs to be noted somewhere.

The rate of increase in food production world wide is just keeping pace with the increased demand for food by the addition of about 75 million extra people in the world each year. The majority of the increase is due to higher yields and reduced wastage of produce.

The ability to maintain the increase in the rate of food production is not certain. We cannot be complacent. There are many threats to food production, including

- variable climate,
- pests, and diseases,
- weeds,
- loss of productive land area due to salinity, acidity, urbanisation and erosion,
- reductions in or increased costs of essential inputs such as fuel, fertilizers and herbicide and pesticide chemicals.

#### **Q1. What opportunities exist to expand agricultural production in Australia..**

Today, food must be produced efficiently in terms of produce per hectare, per megalitre of water used, per kg or fertilizer used, per litre of fuel consumed. There must be nil or minimal impact on the environment. To achieve the necessary efficiency to survive and produce high quality food producers must be highly skilled and have the backup of specialists in many disciplines.

**COMMENT 1. The current government's policy to develop agriculture in the north must be backed by a plan which defines the agronomic and economic goals and environmental safeguards.**

The new, presumably private, developments must be large enough to attract viable support industries and hence a large work force and must be supported by infrastructure including roads, primary and senior schools and hospitals which encourage workers to come and stay.

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**COMMENT 2.** Australia has world class skills in soil science, irrigation, agronomy, livestock production, weed and pest management, machinery and project management. Many could be used in other regions of the world to raise food production.

For example, Australians are world leaders in the use of near infrared spectroscopy and aerial imaging of crops to assess variation in soils and crop yields and quality of broad acre and horticulture crops. The Chinese has expressed interest in this technology as applied to rice in southern NSW but I am not aware of a dedicated programme to ‘export’ the Australian experience. The American rice industry could benefit from the Australian experience but have elected to use an older and less beneficial technology.

A key to raising crop productivity is to identify and ameliorate less productive parts of an agricultural area. The ability to assess variability will be aided by cameras mounted on unmanned airborne vehicles. Operational regulations which assist the collection of data from farming areas, rather than rules which restrict their use, are required urgently.

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**Q2. How can new farmers be attracted to agriculture and how can they succeed?**

**COMMENT 3.** As one who grew up on the land and was fortunate to have some financial support to study agriculture I believe strongly that there must be

1. The expectation that there are careers, not simply jobs, in the regional Australia.
2. Scholarships which encourage and make it possible for students from regional Australia to study at tertiary level,
3. On-going opportunities for all farmers to raise their skills by on-going training at tertiary institutions such as TAFE and Universities and on-line institutions which should be possible when the NBN is set up.
4. Technical support – both research and advisory – through a network of specialists who understand the needs of both the environment and the

agricultural industries.

5. Ensure that communities are viable by providing the support infrastructure including roads, primary and senior schools and hospitals which encourage workers to come and stay.
6. Provide longer-term contracts for the staff in support industries.

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**Q6. Improving the competitiveness of inputs to the supply chain.**

**How can land etc be more effectively deployed..**

**COMMENT 4. It is important to set goals and have R&D Corporations encourage research to help find ways to achieve these goals.** As an example, the rice industry set the guideline that land can only be used to grow rice if less than 18 ML of water per hectare are needed to grow it.

**COMMENT 5. Agriculture is a broad science and it is vital that a pool of scientists representing many disciplines are supported to help producers, processors and consumers understand the system and work on ways to improve it in conjunction with fellow scientists, the food industry and the supporting communities. Not all job opportunities need to be based in rural areas but links between individuals must be encouraged.**

**How can we attract workers to agriculture particularly in remote areas?**

**COMMENT 6. I strongly suggest a high profile Australian be appointed as the ambassador for regional Australia. By high profile I am thinking of a retired Governor General or very high profile scientist – a ‘Dr Karl’ type person.**

**The aim is to attract the attention of the youth at the time they must choose science subjects and possible careers. Short term contracts are not attractive for workers in rural areas and reduce the number of skilled workers and their partners who are prepared to go there.**

**How can rural industries and Government better identify, prioritise and fund research , development and extension?**

**COMMENT 7. Again, goals must be set with a mix of short and long term visions in mind.**

**Care must be taken to keep funding for new and exciting ideas in balance with the on-going need to maintain some routine services such as plant breeding and plant pathology.**

**COMMENT 8. The Scientists-in-Schools programme is excellent and could be a platform to raise the image of and potential for careers in agriculture / regional Australia.**

Funds invested in (note invested in) research pay large dividends (a return on investment of 10 – 25 times) but the largest gains come from unexpected ?? These opportunities arise when a research is being conducted by teams which are large enough to be viable and are given funds and facilities to explore outside the normal confines imposed by funding which expects (demands) short-term gains.

**COMMENT 9**

**Support research aimed at increasing food production and raising the efficiency of food processing and at reducing the wastage of foods.**

**It is vital that a significant portion of such funding be directed to basic research.**

There are several avenues through which such funds could be directed but -

- 1. Industry specific R&D Corporations offer an are established format for setting priorities and achieving outcomes but their base funding should be increased.**
- 2. A major inefficiency in the R&D funding system is that each corporation has a different form and sometime a unique software for applications for funding. I am also of the opinion that the details expected are excessive. On both counts these issues cost far too much in terms of the time of the scientist and the members of the R&D committees.**
- 3. A range of scholarships for undergraduate and post graduate study must be included in the R&D budgets..**
- 4. Having worked in a Cooperative Research Centre for 8 years I see the of CRC's have advantages over many industry-based R&D corporations as they of draw together research and industry and clients to enhance the rate of**

adoption of new knowledge.

5. At the R&D stage food distributors should be expected to make significant contributions as they are in many cases the main beneficiaries of a stable supply of high quality foods.

**MAJOR COMMENT regarding inputs to the supply chain.**

Australian agriculture depends very heavily on phosphate fertilizers.

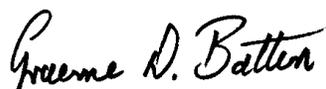
On a per capita basis Australians use phosphate fertilizer at about 6-times the world average. The majority of the phosphorus is imported from one country - Morocco which has about 80% of the world reserves of phosphorus.

The price of phosphate rose quickly in mid 2008 by 2.6 times. While it returned to about its former price this was a clear indication that any disruption in supply can rapidly impact on input costs and the consequence would be an almost immediate 20-30% reduction in the production of several major foods and declines in the production of all food crops within a few years.

Potential threats such as this must be factored in to planning and research programmes.

I humbly submit these comments for your consideration,

Sincerely,

A handwritten signature in black ink that reads "Graeme D. Batten". The signature is written in a cursive, flowing style.

*Dr Graeme D Batten*

*Honorary Professor, The University of Sydney*

*Editor-in-Chief, Journal of Near Infrared Spectroscopy*

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Chairman ANISG-Conference, 4-7 May 2014

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