



Amos William Howard

A W Howard Memorial Trust Inc

Presentation to the Mt Barker Agricultural Bureau

11 May 2006

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2001 privileged to be  
introduced to A W Howard

Serendipity or cunning  
planning .....?



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## Subterranean clover

*Trifolium subterraneum*



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### History Amos William Howard (1848 – 1930)

1848 Born Hertfordshire

1876 Arrived Australia

1889 Settled Blakiston

Established Nursery: daffodils, tulips, roses, garden shrubs

Went to buy cow from Mr Michael Daly

1889 Found “subterranean clover” (*Trifolium subterraneum*)

1907 First major sales – first variety **Mt Barker** – E&W Hackett Seed Merchants

“The Wayside Weed”

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Miracle plant of the century

Transformed face/landscape of Australia

Lifted farm production – miraculous fashion

Revolutionised agricultural outlook “poor” country

Transformed millions of acres of infertile soils into productive pasture land

Three distinct phases of development in South Australia

- Subterranean clover/superphosphate – podolised soil N P high rainfall areas
- Subterranean clover/trace elements – deficient trace element (Cu, Zn, MO) Ninety mile Desert
- Subterranean clover/worn out wheatlands

(Source N S Tiver Chief Agricultural Advisor 3 October 1969)



Original landscape

Current landscape 2006



## Blakiston Church



Front sign



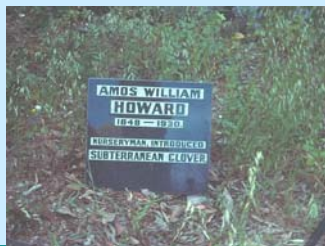
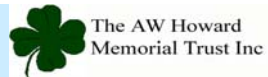
Front View



View from AW Howard Gravesite

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## Blakiston Church family plot



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## Roadside Historic Monument



"In 1889 Amos Howard found subterranean clover growing at the foot of the slope below this memorial. He recognised its great promise and was the pioneer of its use in sown pastures. He harvested the first seed and distributed it widely throughout Australia.

Through Howard's foresight, devotion and tireless effort, the value of subterranean clover was firmly established and has become the most important pasture plant in Australia.

By transforming millions of acres of infertile soils into productive pasture land it has multiplied our flocks and herds. By restoring the fertility of large tracts of worn out wheat lands it has increased our harvests.

The work of this man has contributed in generous measure to Australia's progress and prosperity."



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## Mt Barker Showground Gates



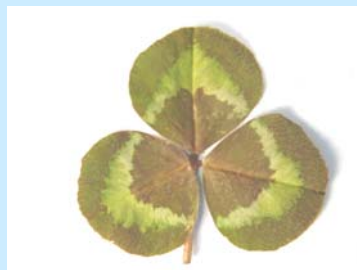
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Recognition of legacy  
through District  
Council emblem



## Subterranean clover

*Trifolium subterraneum*





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## Main attributes

- Suited for acid to slightly alkaline soils
- Can bury seed in soil if soil conditions favourable
- Tolerant to heavy grazing pressure
- In SA suited to 400mm – 800mm rainfall

Source: Dr Carolyn de Koning SARDI

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## Subspecies and cultivars

- Three subspecies of *Trifolium subterraneum*;
  - ssp. *subterraneum*,
  - ssp. *brachycalycinum* &
  - ssp. *yanninicum*

Source: Dr Carolyn de Koning SARDI

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## Subspecies *subterraneum*

- Best suited to free draining acid to neutral soils
- Examples of cultivars (Nungarin, Dalkeith, York, Mt. Barker & Denmark)
- The majority of cultivars belong to this subspecies group.

Source: Dr Carolyn de Koning SARDI

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## Subspecies *brachycalycinum*

- Best suited to free-draining neutral to slightly alkaline soils.
- Examples of cultivars (Rosedale, Clare & Antas)

Source: Dr Carolyn de Koning SARDI

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## Subspecies *yanninicum*

- Tolerant of acidic waterlogged soils
- Examples of cultivars (Trikkala, Riverina & Gosse)

Source: Dr Carolyn de Koning SARDI

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## New Cultivars

- Izmir (ssp. *subterraneum*)
- Urana (ssp. *subterraneum*)
- Coolamon (ssp. *subterraneum*)
- Napier (ssp. *yanninicum*)

Source: Dr Carolyn de Koning SARDI

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## Main breeding objectives for Subterranean clover

- Low oestrogen content
- High resistance or tolerance to phytophthora & clover scorch
- High herbage/seed production & persistence
- RLEM resistance

Source: Dr Carolyn de Koning SARDI

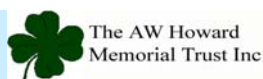
Established by Australian Institute of Agricultural Science  
(now IAST) in 1964

To commemorate the unique contribution of Amos Howard in  
the use of subterranean clover as a pasture plant in Australia

Current balanced share portfolio value \$2.1 million

### **Aims**

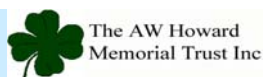
“Encourage and promote research and investigation in the  
fields of natural science and social science, including  
economics which relate to the development, management  
and use of pastures”



## Committee membership

Dr Rob Lewis	Chair, Executive Director SARDI
Dr John Radcliffe	Special Advisor CSIRO
Geoff Thomas	President SA Branch AIAST, Thomas Project Services
Dr Bob Clements	ACIAR
Prof Geoff Fincher	Deputy CE ACPFG, Director Waite Agricultural Research Institute
Prof Geoff Page	Head School International Business UniSA
Prof David Coventry	Head Dept Sustainable Agricultural Production Adelaide University
Dr Doug Reuter	Director Reuter & Associates
David Brown	Consultant
Jeff Glasson	Finance Advisor McQuarie Bank
Brenton Barker	Treasurer Finance Officer SARDI
Clair Greenock	Secretary Communications Officer SARDI

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## Activities

### Travel Grants

Annual, up to \$3500 assist scientists undertake overseas study tours/participate in international conferences

### Research Fellowships

Top up post-graduate stipend of \$5000 pa up to 3 years, currently 5 stipends (2 in 2006 due to quality of applications)

### Grants in Aid

Awards up to \$5000 on merit and need to organisations, associations, communities or persons for listed purposes

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- 2003 Lindsay Bell - University of Western Australia  
*“Prospects for Dorycnium species in agricultural systems that increase water use”*
- 2004 Allison Southwell - Charles Sturt University  
*“The influence of grass architecture on small-scale rainfall distribution in soil”*
- 2005 Natasha Teakle - University of Western Australia  
*“Physiological and molecular basis of salt tolerance in Lotus glaber, a new perennial pasture legume for saline areas”.*
- 2006 Andrew White - University of QLD  
*“Grazing management systems for cattle in northern Australia”.*  
Richard Bennett - University of Western Australia  
*“Cross- inoculation patterns and effectiveness of native legumes and indigenous root nodule bacteria from Western Australia”*

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### **Amos William Howard (1848 – 1930)**

Epitaph:

*“Who would not be pleased to do even a little towards  
the advancement of one’s own country”*

(Source: A W Howard’s diaries)

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Learn more from the following link:

<https://www.sardi.sa.gov.au/links>

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