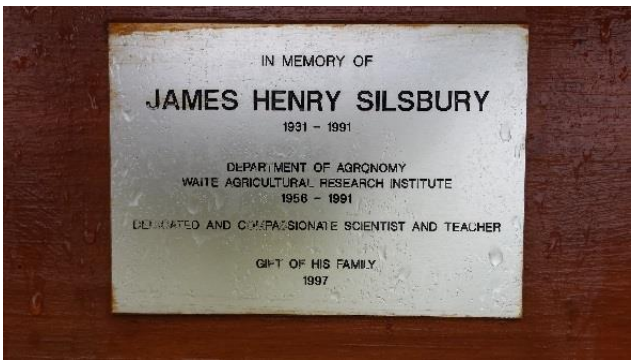
WAITE ARBORETUM SEAT FACT SHEET: J. H. SILSBURY 1931 – 1991
(Arboretum seats, memorial seats, history features) © Friends of Waite Arboretum Inc.
https://friendsofwaitearboretum.org Terry Langham 2016

JAMES HENRY SILSBURY 1931 – 1991

Photo: Terry Langham

1. **NAME - DOB – DOD: James Henry SILSBURY 1931 - 1991**

- **Occupation:** *"Lecturer 1956; Senior Lecturer 1967 -. Photosynthesis, nitrogen fixation"* (Edgeloe, 1984, p.177).
- **Seat location:** North east side of the fenced dam near Claremont Avenue and on the south side of Elm Avenue. The seat is facing south west.
- **Nearby tree** #190 H13 *Lophostemon confertus* (R.Br) P.G. Wilson & J.T. Waterhouse, Brush Box MYRTACEA N.S.W., QLD., N.T. 1928




Photos: Terry Langham

Photos: Terry Langham Foliage, bark and groups leaf litter of #190 H13 *Lophostemon confertus* (R.Br) P.G. Wilson & J.T. Waterhouse, Brush Box MYRTACEA N.S.W., QLD., N.T 1928

Photo: Terry Langham

2. QUALIFICATIONS:

"MScAgr Western Australia, PhD: Lecturer 1956; Senior Lecturer 1967 -. *Photosynthesis, nitrogen fixation"* (Edgeloe, 1984, p.177).

3. AREA OF RESEARCH:

Department of Agronomy Waite Agricultural Research Institute 1956 - 1991

"MScAgr Western Australia, PhD: Lecturer 1956; Senior Lecturer 1967 -. *Photosynthesis, nitrogen fixation"* (Edgeloe, 1984, p.177).

Plant Physiol. (1987) 84, 950-953
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Nitrogenase Activity in *Trifolium subterraneum* L. in Relation to the Uptake of Nitrate Ions

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ABSTRACT

An experiment was conducted to test the hypothesis that, when nitrogenase and nitrate reductase both contribute to the nitrogen nutrition of a nodulated legume, nitrogenase activity is inversely proportional to the rate of accumulation of organic nitrogen derived from the reduction of nitrate. *Trifolium subterraneum* L. plants, inoculated with *Rhizobium trifolii* and sown as small swards, were allowed to establish a closed canopy and steady rates of growth, dinitrogen fixation, and nitrogen accumulation. Swards were then supplied with nutrient solutions of 0, 0.5, 1.0, or 2.5 mM NO_3^- with a 29.69% enrichment of ^{15}N and allowed to grow for a further 33 days. Harvests were made to measure dry weight, nitrogen accumulation, ^{15}N accumulation, NO_3^- content and nitrogenase activity by acetylene reduction assay. Since the ^{15}N of the plant organic matter could have been derived only from the NO_3^- of the nutrient solution, its rate of accumulation provided a measure of the rate of NO_3^- reduction. It was found that as this rate increased in response to external NO_3^- concentration the rate of nitrogenase activity decreased proportionately. It is concluded that the reduction of nitrate and the reduction of dinitrogen act in a complementary manner to supply a plant with organic nitrogen for growth.

"Crop Science Society of South Australian Incorporated"

… *"In the early 1970s Rathjen, with* ***Dr James (Jim) Silsbury*** *from the Waite and Trevor Dillion from the SA Department of Agriculture, initiated the formation of the Crop Science Society of South Australian Incorporated." From its inception in 1975 the Society has provided a forum for the exchange of information on crops and crop production between farmers, extension workers, agricultural consultants, marketing representatives and research scientists"* (Zeitz, 2014, pp.203 - 204). …

"… successfully applied to the reserve Bank's Rural Credits Development Fund…"

… *"In addition with quotas on wheat production and "wool under a cloud" due to competition from synthetics, alternative crops were needed for Australian agriculture. Consequently, scientists at the Waite returned to grain legumes. In 1972 Colin Donald, Ron Knight and Jim Silsbury successfully applied to the reserve Bank's Rural Credits Development Fund to fund a research fellow to work on grain legumes"* (Zeitz, 2014, p.219).

"… programs based on Mediterranean perennial pasture grasses."

"British scientist strongly advocated the use of perennial pastures and, according to Ron Knight, the "idea took" off in Australia:

> *there were groups in Canberra working on phalaris, I started to work on Dactylis glomerata, otherwise called cocksfoot, there were people over in W.A.* ***Jim Silsbury*** *was appointed to the Waite to work on ryegrass, Lolium, and so there were all these programs based on Mediterranean perennial pasture grasses"* (Zeitz, 2014, p.222).

"… understanding nitrogen fixation largely in pasture legumes such as subterranean clover".

"… plant physiologist in Agronomy examined how physiological processes in plants were integrated to cause whole plant response in cultivated communities (crops). These crop and pasture ecologists included ***Jim Silsbury****, appointed in 1956, whose research was focused on understanding nitrogen fixation largely in pasture legumes such as subterranean clover, …"* (Zeitz, 2014, p.237).

4. RESEARCH SPECIALITY: as above

5. FURTHER INFORMATION - SOME WORDS OF HUMOUR, INTERESTING FACTS, ETC:

6. PERSONAL INFORMATION:

7. PHOTOS:

8. REFERENCES:

Edgeloe, V. A. 1984, *The Waite Agricultural Research Institute: The First Fifty Years 1924 - 1974,* The Waite Agricultural Research Institute, Adelaide

Silsbury, 1986, 'Nitrogenase Activity in Trifolium subterraneum L. in Relation to the Uptake of Nitrate Ions': *American Society of Plant Biologists* [Online, accessed 30 April 2016] URL**:** www.plantphysiol.orgon