

IS PUBLIC INVESTMENT IN R&D
VALUABLE?
THE ARC PPRI WEEDS RESEARCH DIVISION

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The Context

- ARC – Agricultural Research Council
 - South Africa's lead Agri R&D Institute
- PPRI – Plant Protection Research Institute
 - Focussed research on managing plant disease, pests and invasive plants
 - Promoting commercial use of beneficial organisms
 - Improve resilience, production and sustainability of agricultural industry.
- Weeds Research Division
 - Research biological control opportunities for invasive alien plants

Invasive Alien Plants

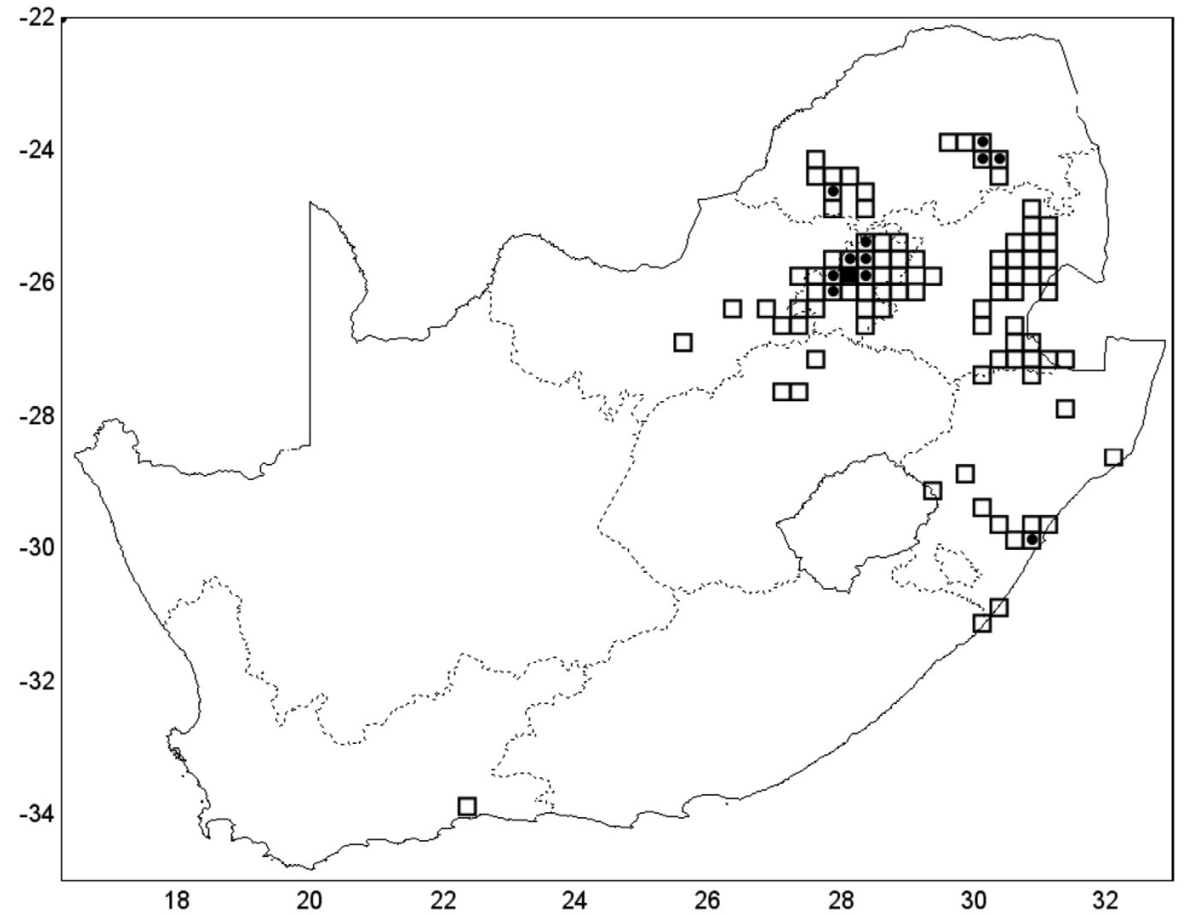


Figure 1: Spread of *Campuloclinium macrocephalum*: 1960s (■), 1970s-1990s (●), 2000s (□).

(Source: Henderson, 2011).

The Problem

- What is the value of investing in biological control research?
 - Valuing research
 - Valuing the environment
 - How do we assign value?

The Method

- Descriptive approach, using Cost Efficiency analysis
 - Mix of qualitative and quantitative
- Chose and assess indicators
 - Common sense appraisal
- Interpret literature and data
 - Understanding the situation properly

Cost Efficiency Analysis

Period	Biological Research Budgeted Cost (x)	Biological Implementation Budgeted Cost (y)	Total Biological Budgeted Cost (x + y) = a	Conventional Budget Cost (z)	Total Control Budget Cost (x + y + z) = b	Biological as % Total Cost (a/b)*100	Biological Research as % Total Cost (x/b)*100
1 Nov 2013 – 31 Mar 2014	602190.16	245658.30	847653.00	2425801.79	25105670.96	3.38%	2.4%
1 Apr 2014 – 31 Mar 2015	1700688.69	563053.29	2263084.68	68865526.36	71128611.04	3.18%	2.4%
1 Apr 2015 – 31 Mar 2016	1811196.81	575230.60	2386863.30	69317063.82	71702802.70	3.33%	2.53%
1 Apr 2016 – 31 Mar 2017	1790343.94	622529.36	2411981.35	73060203.93	75467293.58	3.2%	2.37%

Table 1: Cost Efficiency Comparison between Biological and Conventional Invasive Alien Plant Control (All figures in 2014 \$). All Figures are VAT inclusive

Mean Biological control as % Total Cost = 3.27%

Mean Biological Research as % Total Cost = 2.43%

Indicators and Assessment

Table 2: Set of indicators and means of assessment

Indicator	Means of assessment	Biological Control Assessment (Yes/No)	Conventional Control Assessment (Yes/No)
Cost efficiency	Does the work minimise cost of solving problem?	Yes	No
Long-term sustainability	Will the work result in a sustainable solution to the problem?	Yes	No
Employment creation and skills development	What is the extent and nature of employment creation opportunities produced?	Limited Mainly high end researchers and managers. Some low skill positions for monitoring and evaluation.	Extensive Mainly low skill opportunities for previously unemployed. Specifically women and youth.
Advance in scientific knowledge or capability	Does the work produce advances in national scientific knowledge database and capabilities?	Yes Fairly extensive advances supported	No Limited associated research and scientific development

Findings and Conclusion

- Societies need a healthy environment to flourish
- Development opportunity for Biotechnology industry
- Investment into Public Research is highly valuable
- Investment into the Weeds Research Division is **highly valuable!**

Relevance to IFAMA?

- More holistic approach to economic analysis is promoted
 - Consider environment as key ingredient to long term growth
 - Monetary figure often misleading
- Biotechnology as key area of development
 - More sustainable
 - Cheaper in the long run
- Move away from overreliance on chemical based inputs

Thank You

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The Agricultural Research Council

<http://www.arc.agric.za/Pages/Home.aspx>

South Africa

