

Murdoch University and Food Security in Africa

- Introduction of legumes and rhizobia to increase N fixation
- Maintaining quality in the harvested product
- Investigating the nexus between Agriculture and Mining

A/Prof Graham O'Hara and
Prof John Howieson
Centre for Rhizobium Studies



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Three legume projects underway

1. N2Africa funded by BMGF – introducing pulse legumes into cropping systems in SSA; 2010-present
2. SIMLESA-funded by ACIAR – intensification of maize-legume rotations in eastern SSA; 2010-present
3. ECCAL-funded by ACIAR – selection of forage legumes for the grazing lands in RSA; 2006-present



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SIMLESA

aciár

2012 response
to high quality
inoculants on-farm
In Ethiopia-

**Requires Africa-
specific carrier
Formulations!**



Providing high quality inoculants and advice on how to manufacture and utilise them in on-farm trials, postgraduate training opportunities

ECCAL – aciar
putting N fixation into
the grasslands by
introducing forage
legumes and rhizobia

Roxeni community
2010

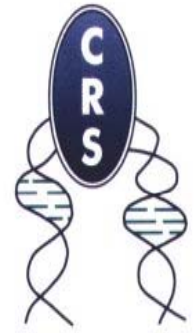
**Requires pasture
Legume and rhizobial
ecology knowledge,
Social intervention**



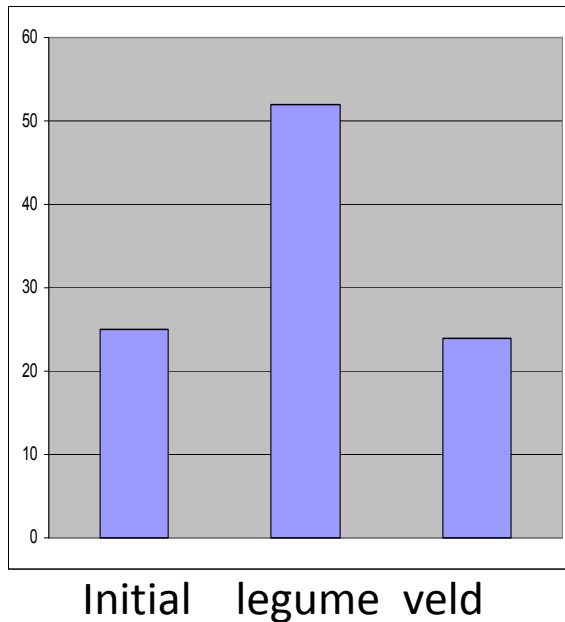
With appropriate legume species we can intervene in communally owned grasslands to improve stock welfare and community wealth

There can be massive returns from introducing pasture legumes into grasslands

10 weeks grazing forage legumes in winter in RSA saw sheep weight double, whereas the control group lost weight. An extra kg of wool was cut per ha.



Sheep weight gain



Nov 2011



Stored Grain Research Laboratory

A/Prof YongLin Ren

Murdoch University
Department of Agriculture and Food, WA



DISCOVERERS WELCOME

Missions & aims of the laboratory

- Contribute to improved productive capacity, profitability and effective management of post harvest grain biosecurity risk in the supply & value chain to ensure grain biosecurity, food safety and trade safety from growers to end users
- Play a key role in training the nation's next generation of plant biosecurity & health scientists



Pre-harvest



Crop

Production/Yield



Post-harvest / storage



Grain ≠ \$\$\$

Value

End users



Dollars

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The Nexus between Mining and Agriculture – a case study for Africa?

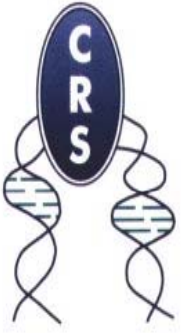
- “MINTOPE” funded by Dept. of Regional Australia and Christmas Islands Phosphate Co.
- Transitioning from a mining economy to plant-based enterprises
- Developing a working model to evaluate the synergies between mining and agriculture in shared infrastructure



Mining company D9 preparing an old mine site for agriculture



Productive growth of lablab in 2012 to produce food and improve soil fertility



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