



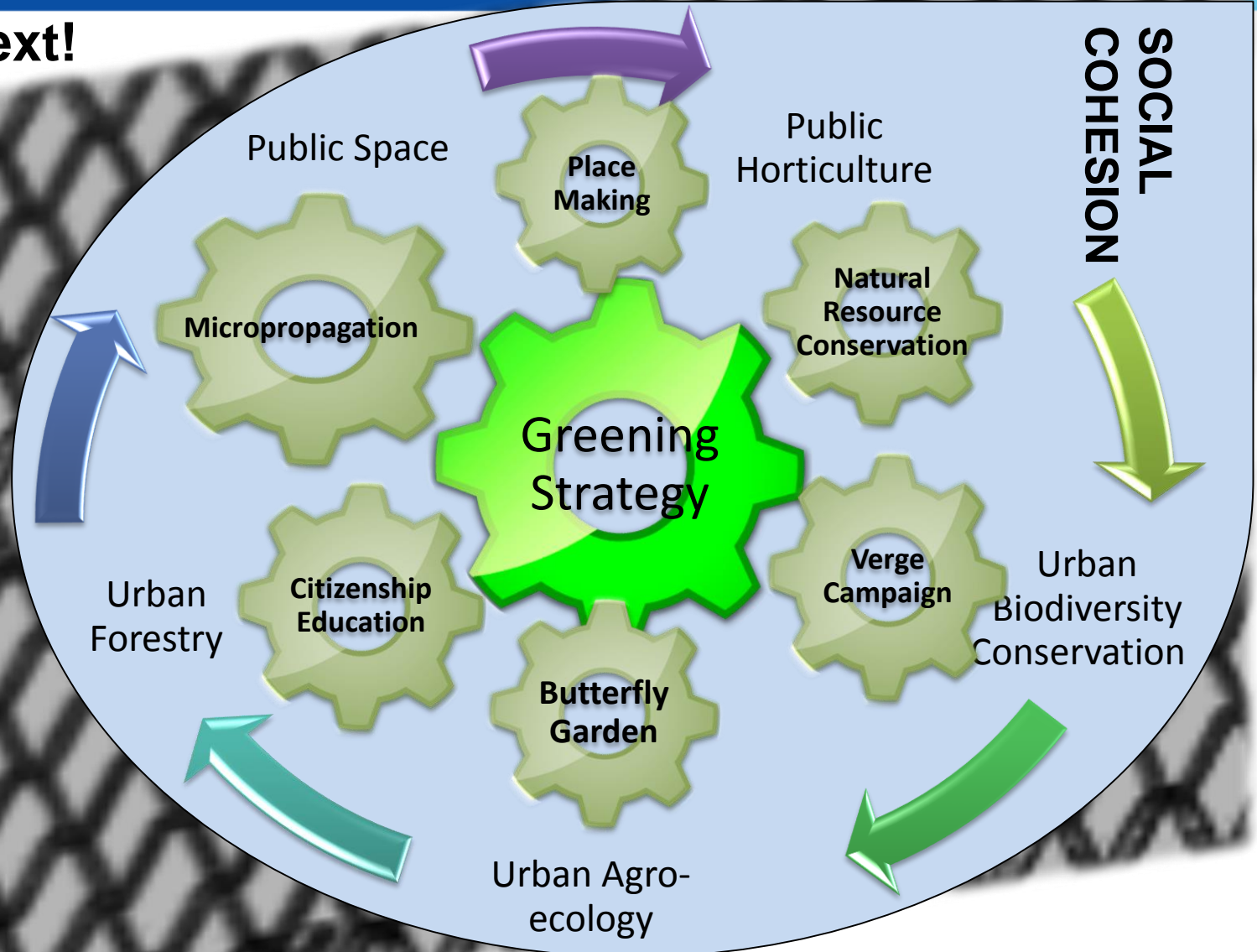
**By 2030 eThekweni will be Africa's
most caring and liveable city**



Dynamics of Municipal Nursery Production: A case study

By : Viloshanie Reddy (MSc Biology)

Dynamic context!



Challenges faced by municipal nurseries



- Many plants with varying characteristics

- species producing recalcitrant seeds



- poor seeders

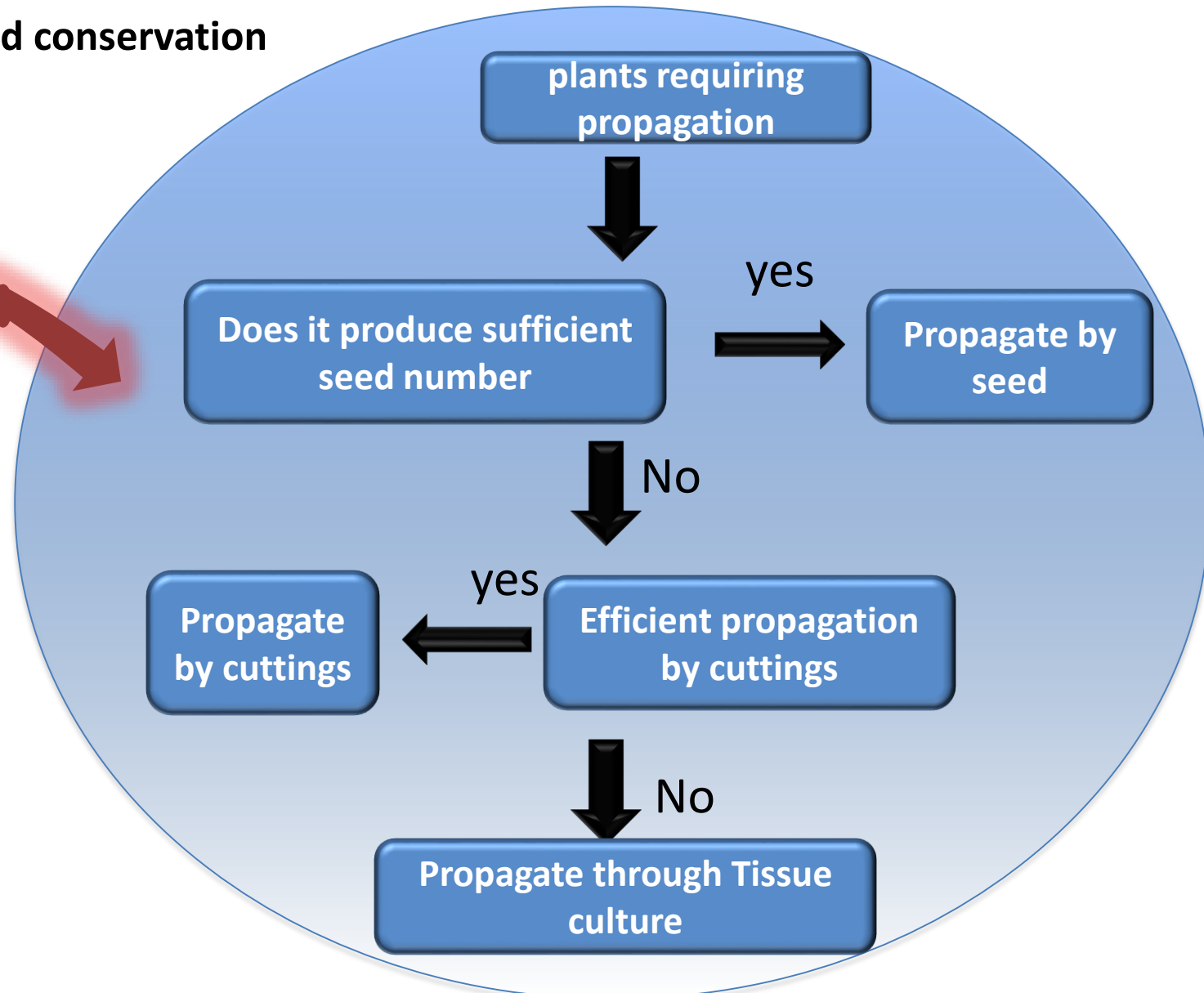
- reduced population sizes make seed production difficult



- Propagation by cuttings is also season dependent

- Delays in rooting of cuttings is also a problem

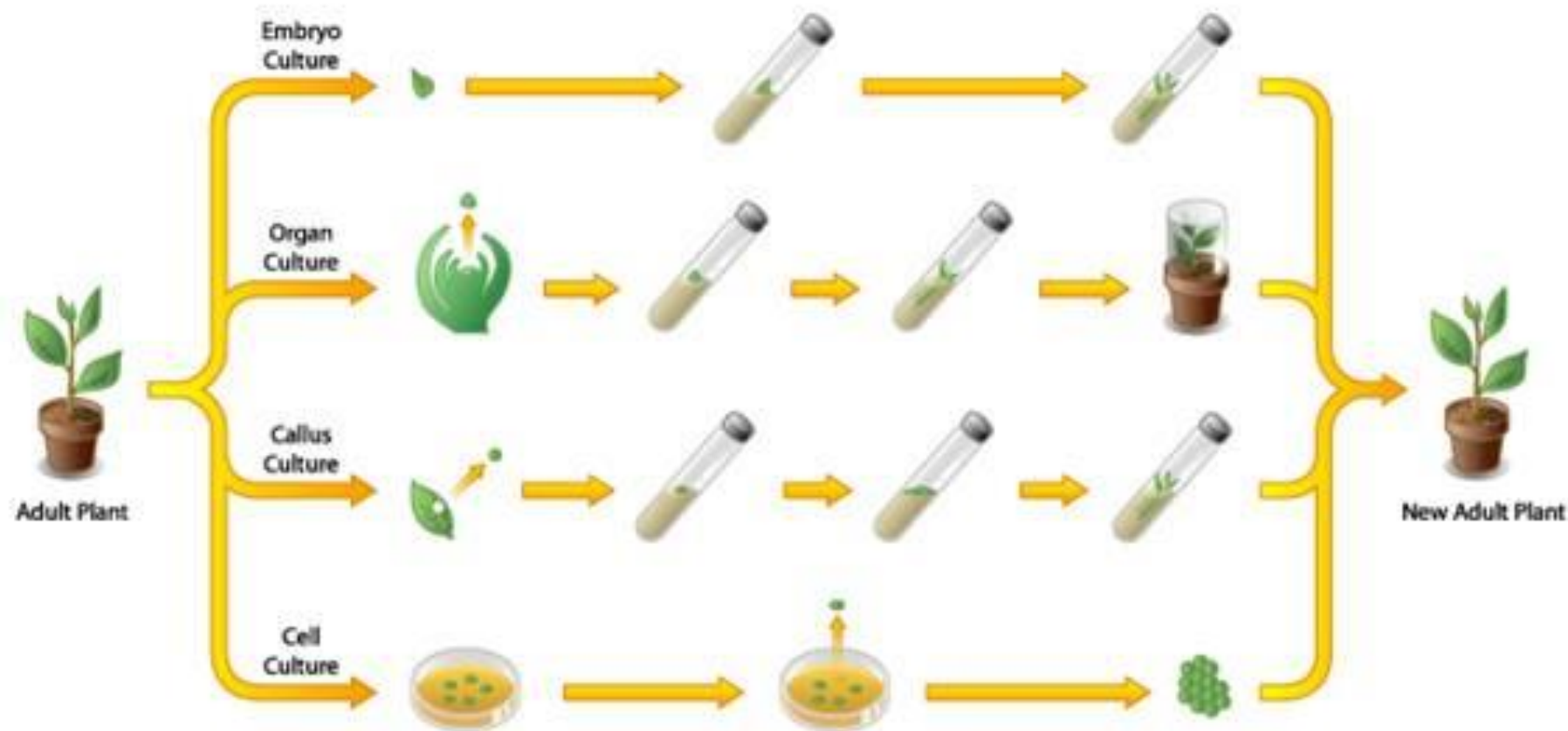
Plant production and conservation global context



Technical info.....

- Scientific approach to maintain and grow cells, tissues and organs from a mother plant on a predetermined growth medium in a sterile environment
- Included in successful propagation (micropropagation) of:
Agricultural crop(sugarcane, cotton, banana)
Forestry species (Eucalyptus)
- Useful in the conservation of species facing extinction
(maintaining *in vitro* collection – orchids, bryophytes)

Technical info continued.....

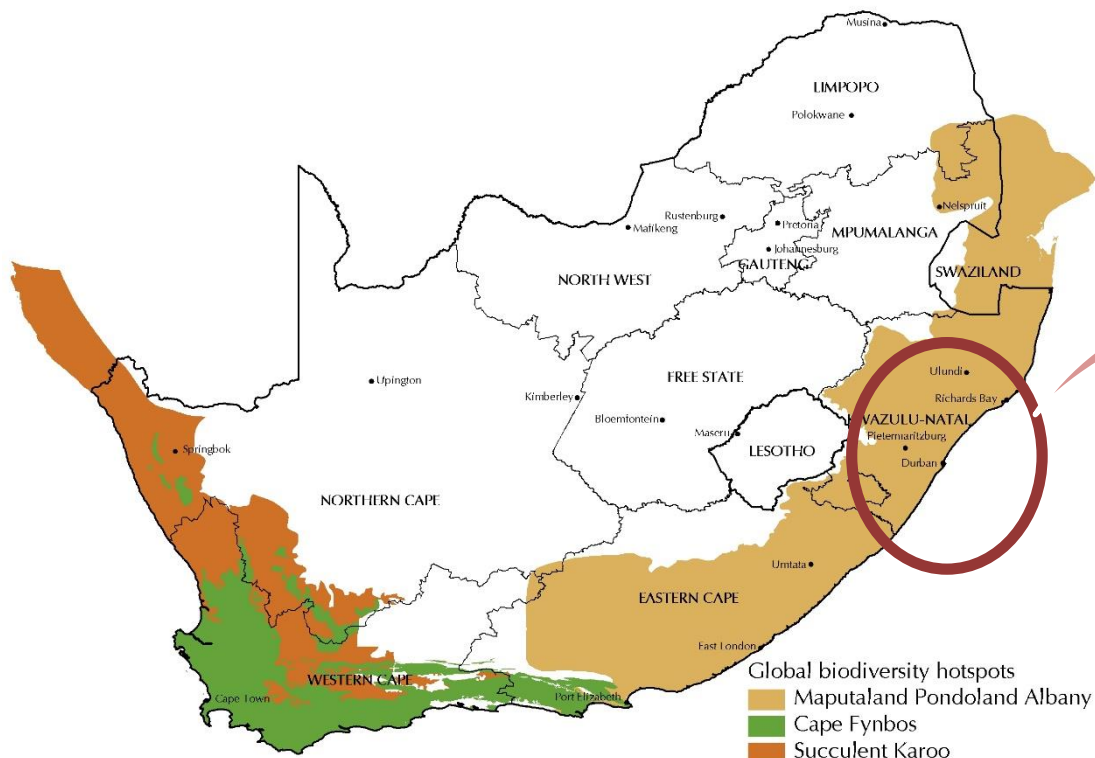


*Figure from: http://agritech.tnau.ac.in/bio-tech/biotech_tc_notes.html

South African context applied in:

- **Commercial production
(Agriculture & Forestry)**
- **Research institutes:**
 - **Conservation**
 - **propagation**

Municipal context – South Africa



Municipal nursery
production

**Proudly
Durban**

PRODUCTION & DISPLAY DIVISION

Nurseries



Tissue Culture Section



Role of Tissue Culture:

To provide plant material through micropropagation for the horticultural services within the Parks, Leisure and Cemeteries Department within the legislative framework of local government and the Integrated Development Plan (IDP) of the city



Background:



- Alongside Durban Botanic Garden

- Since 1986



- Originally focused - ornamental plants for landscaping

- Challenges of biodiversity conservation and reliance of services on various plants species shifting the focus on type of species propagated





Plants for landscaping and greening



Back up material to *ex situ* field collection



Educating and training citizens about these plants



Re-introduction into natural populations

Number of plant species	33
% indigenous	60%
% ornamental & agricultural	40%
% of indigenous species that are used for medicinal purposes	85%



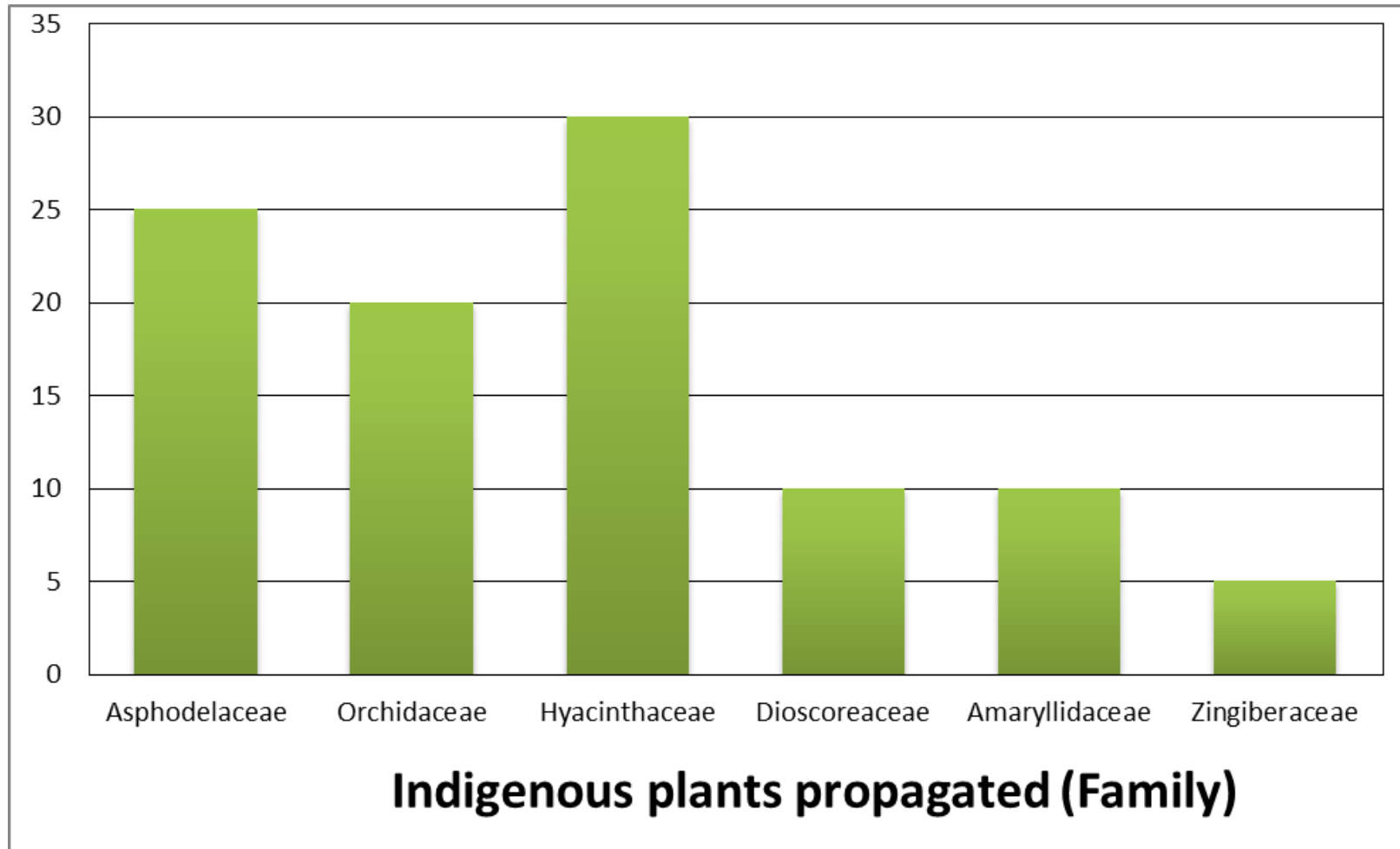
Ornamental plants:



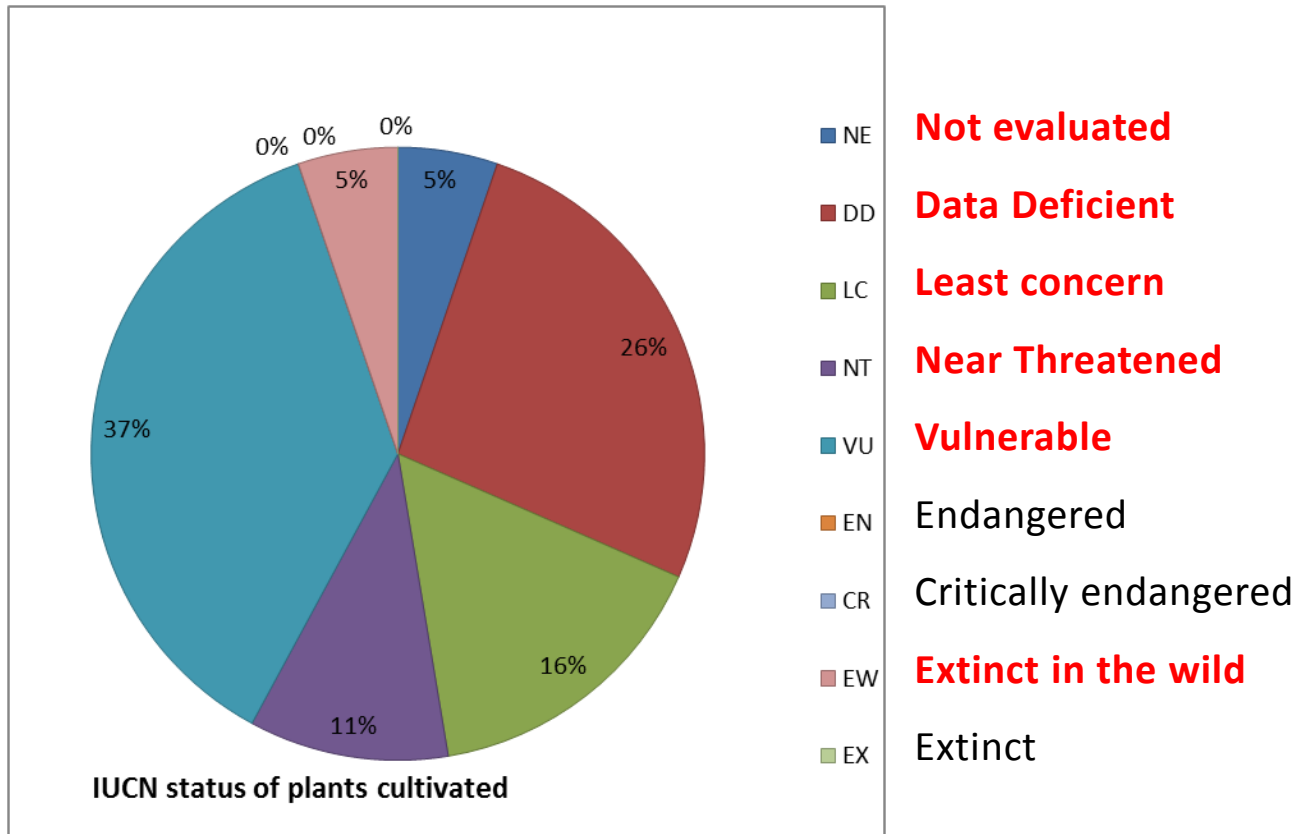
Agricultural plants: (New)

Procedures for commercially grown plant available
Simply adapting process to workflow within facility

Indigenous medicinal plants (families) Propagated



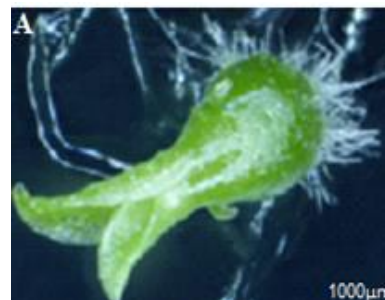
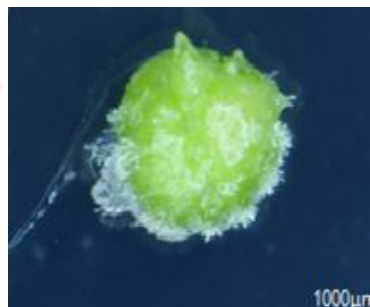
Threatened status of indigenous medicinal plants propagated



Back up material for field collections - orchids



- Supports DBG orchid conservation programme
- Orchid propagation seed – *in vitro* only
- Seed derived plantlets favoured for biodiversity conservation
- Epiphytic and terrestrial orchids



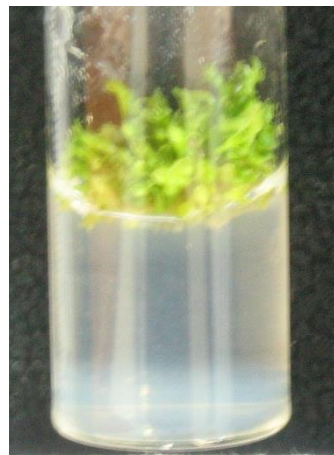
***In vitro* cultivation of threatened indigenous medicinal plants (60%)**

Siphonochilus aethiopicus = wild ginger (extinct in the wild in KZN)

Tissue culture used to cultivate this plant

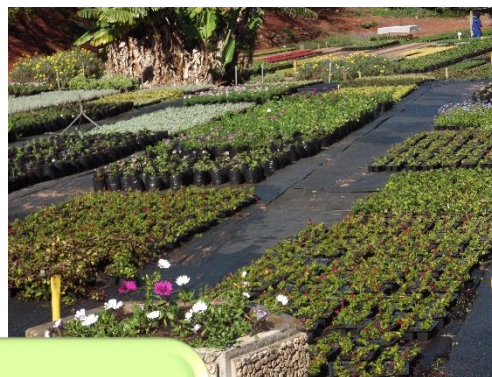
Improving existing *in vitro* propagation relies heavily on information on breakthroughs with commercially produced relative the ginger (*Zingiber officinale*)

Explant considered





Plantlets
established in
normal
environment



Distributed to
nurseries –
potted into
bigger containers

Used for specific
projects in the
EMA



In summary:

- Promotes sustainable plant production
- Tool in *ex situ* plant conservation embraced by the:
Global Strategy for Plant Biodiversity Conservation
- Integrated approach to nursery production valuable tool for overcoming difficult to propagate plants
- Micropropagation not independent of conventional nursery production

Benefits of this in our Greening Strategy:

- Holistic conservation approach
- Propagation of species that have been difficult to propagate

