



# sappi

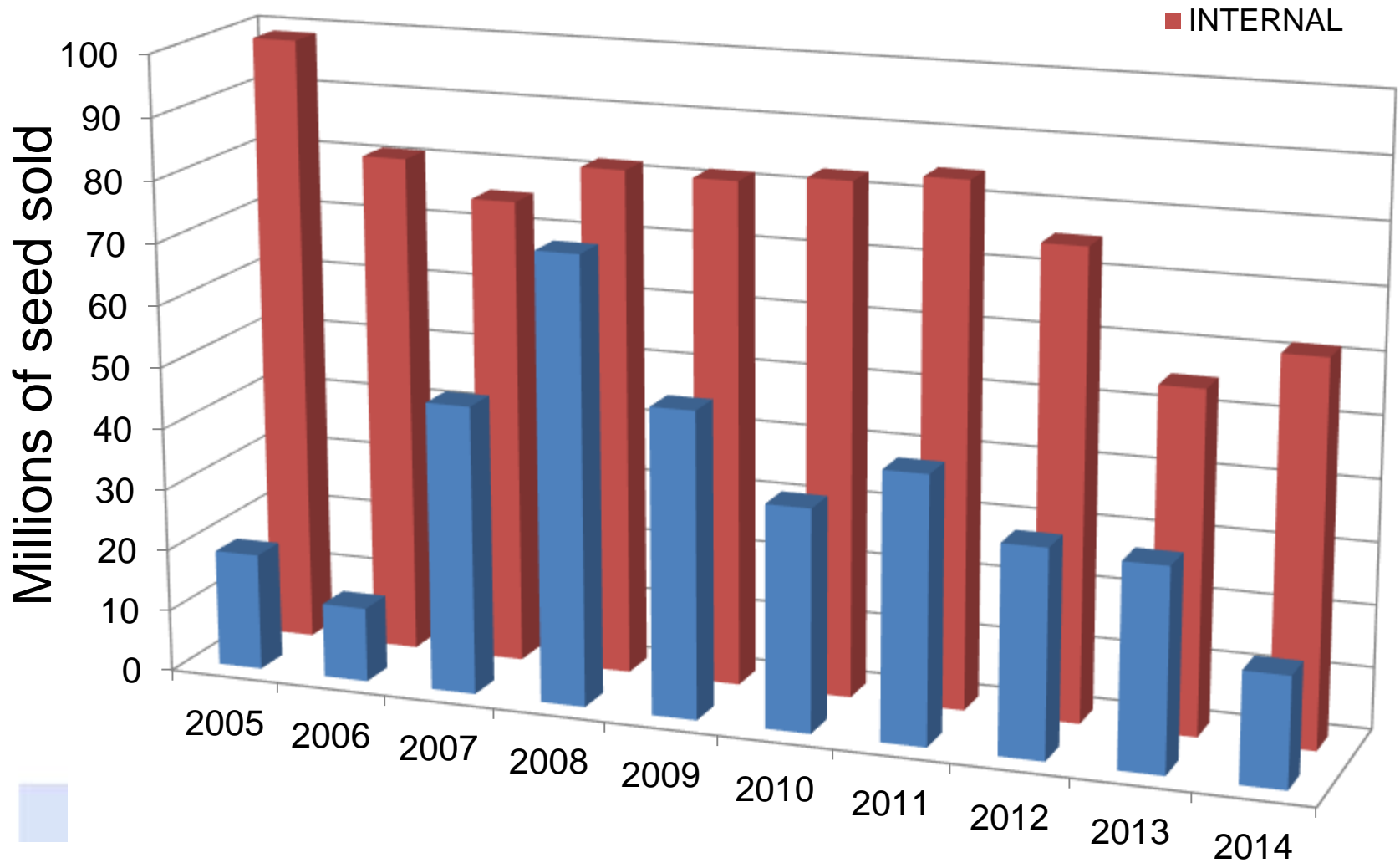
**Pelleting and associated technologies to  
enhance seed sowing and germination**

IPPS 18<sup>th</sup> Annual Conference, Saint Ives

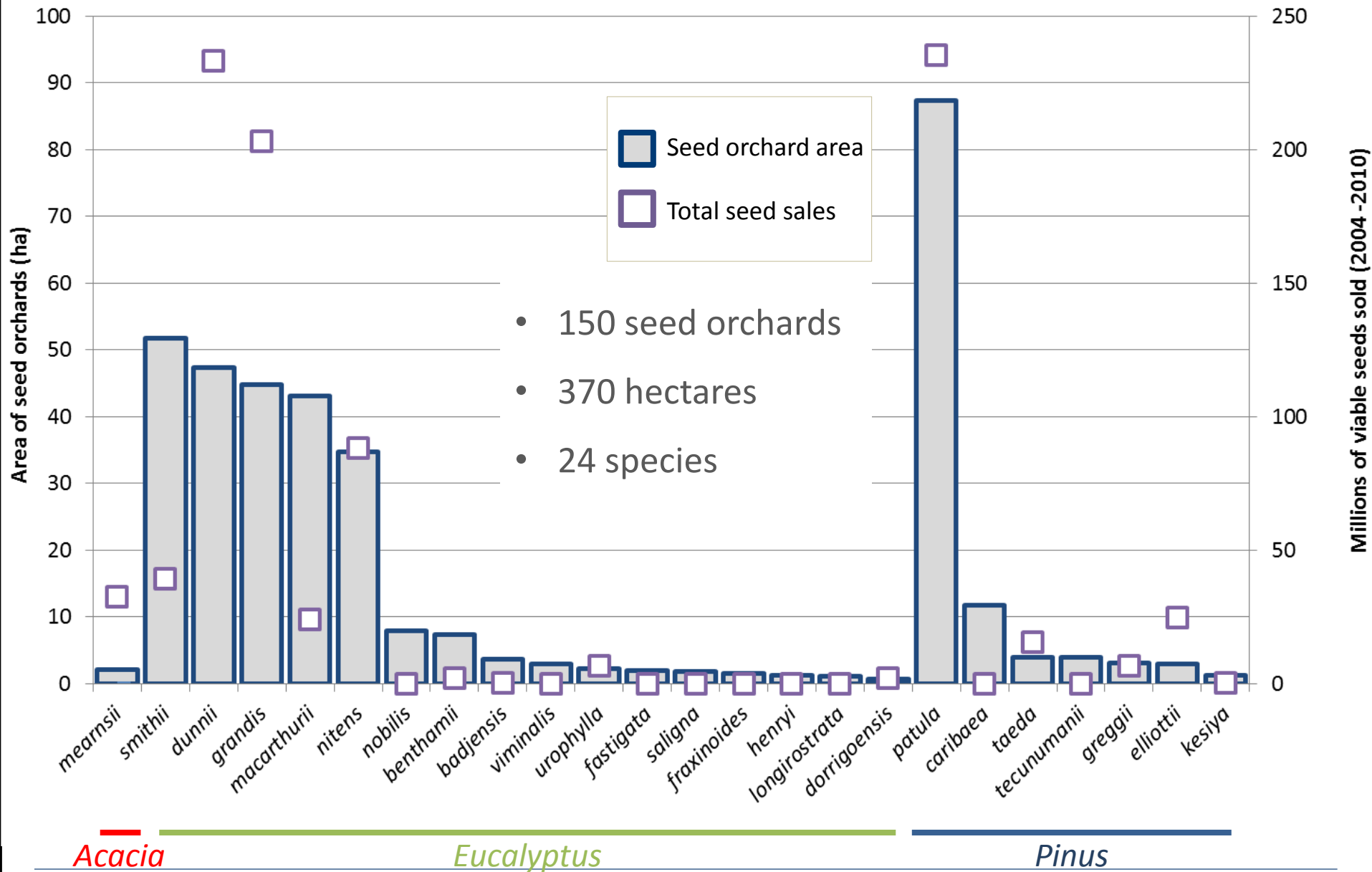
Luke Solomon, Sappi Forests

1mm

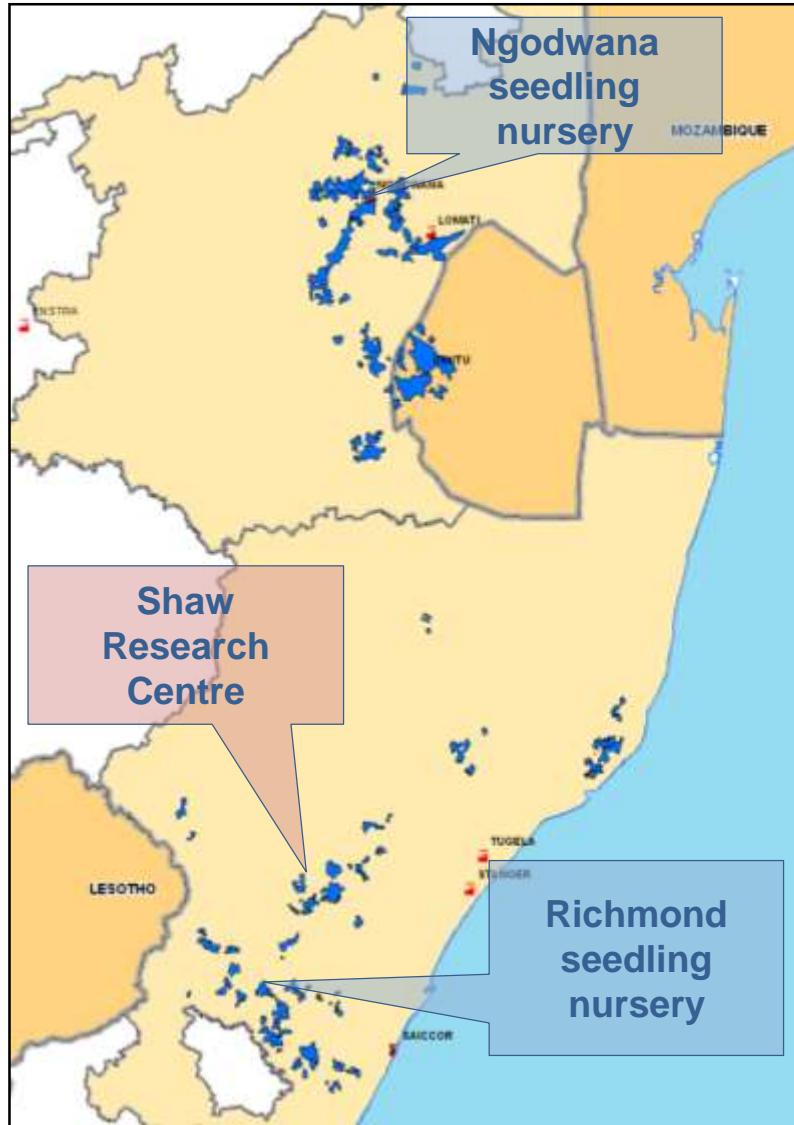
# How much seed does Sappi sow?



# Where does Sappi's seed come from?



# Where do we sow our seed?



- Sappi seedling nurseries:
- **Ngodwana Nursery:** 17.5 million seedlings a year
  - (60% eucalypt, 40% pine)
- **Richmond Nursery:** 16.5 million seedlings a year
  - (close to 100% eucalypt)
- 34 million seedlings annually

# How does Sappi sow its seed?

Seed sower



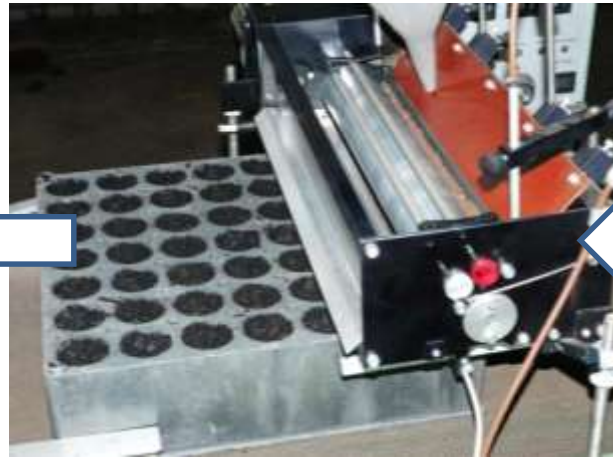
Fill trays



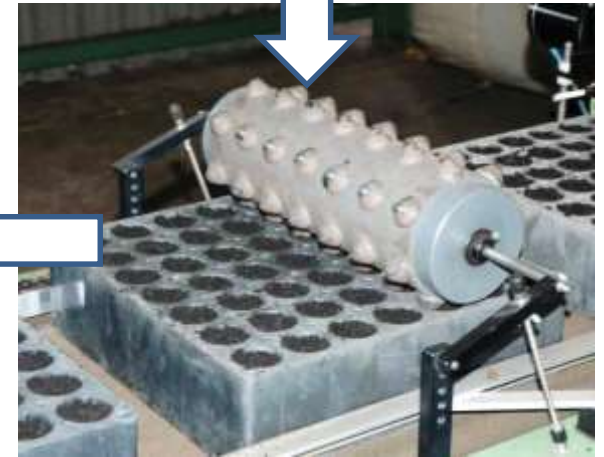
Remove excess media



Water trays



Sow seed



Dibble

# How does Sappi sow its seed?

**Growth**

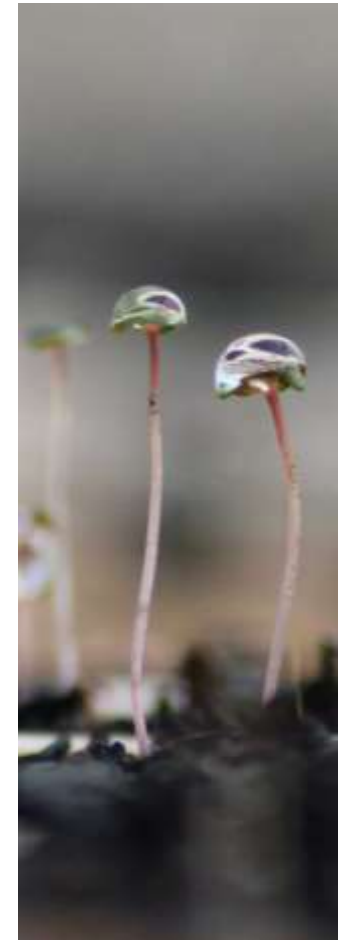
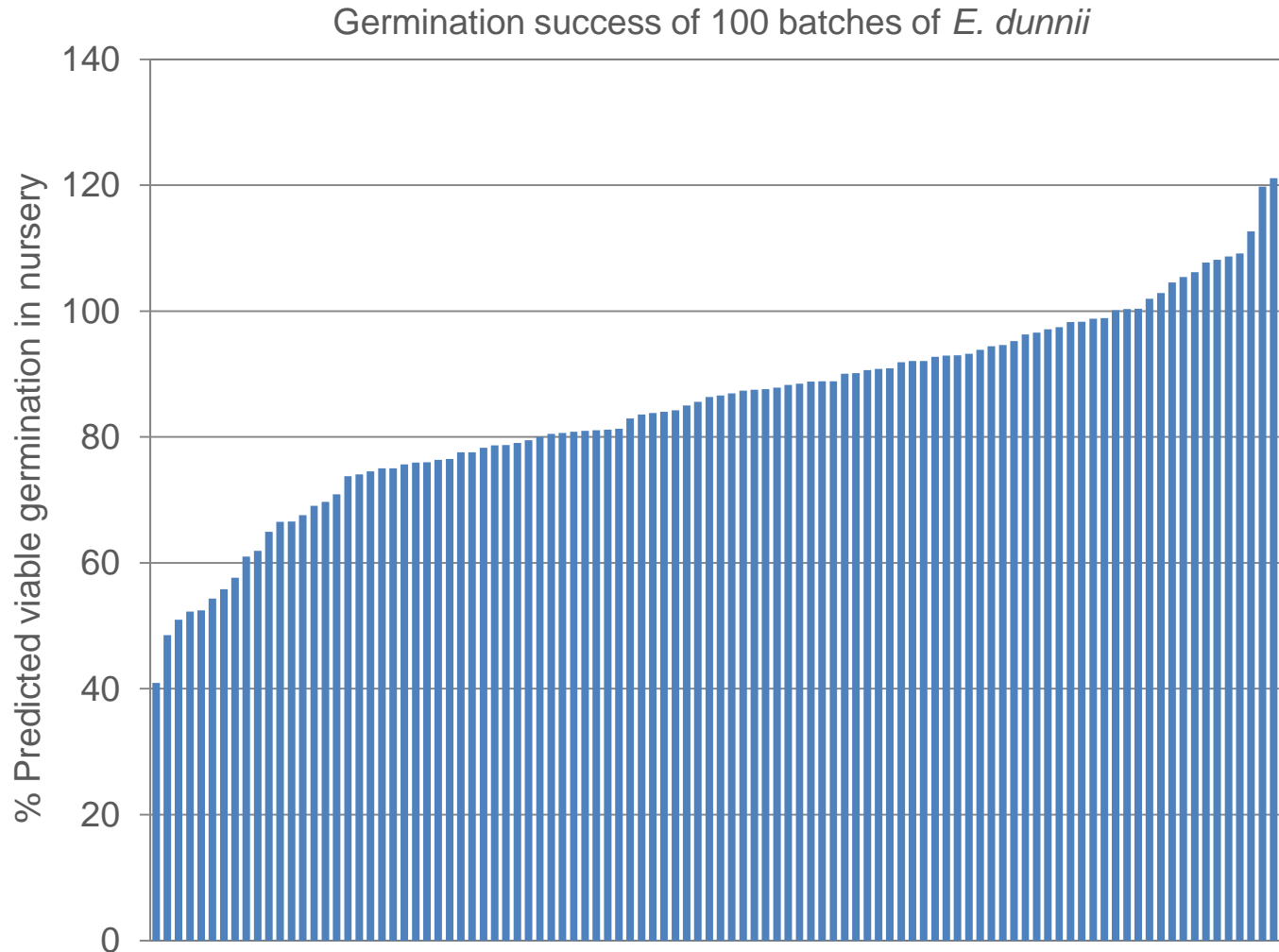


**Dispatch**



# What are the challenges of working with seed?

## 1. Variable germination success in the nursery



# What are the challenges of working with seed?

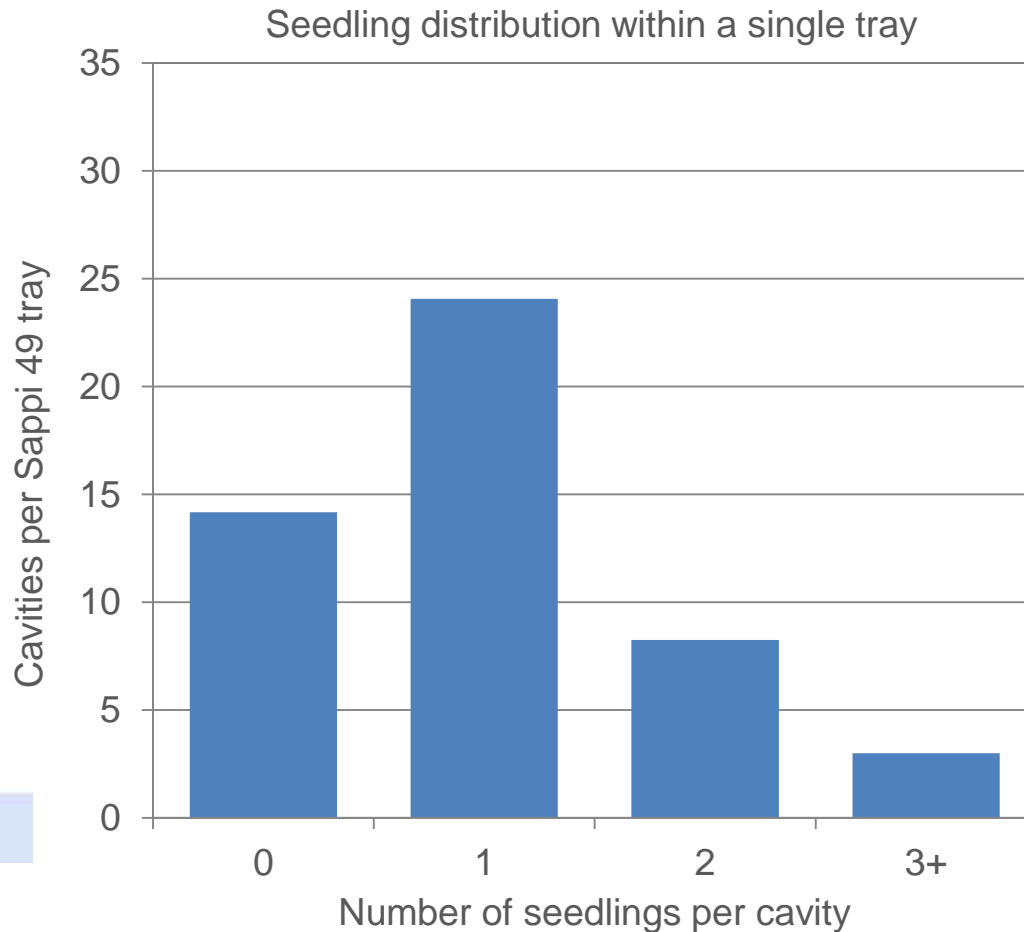
1. Variable germination success in the nursery
2. Variable speed of germination (seedling vigour)





# What are the challenges of working with seed?

1. Variable germination success in the nursery
2. Variable speed of germination (seedling vigour)
3. Variable distribution of seedlings (small seeds)



# Pelleting for improved sowing

1 mm



*'Eucalyptus* seed is small and irregularly shaped, making it challenging to sow. Pelleting transforms seed into uniform, spherical particles with increased size by adding inert material around the seed.'

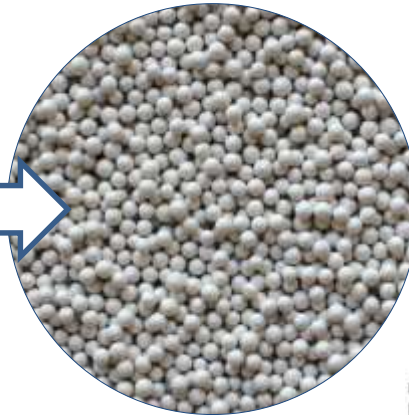
Pelleting



Drying

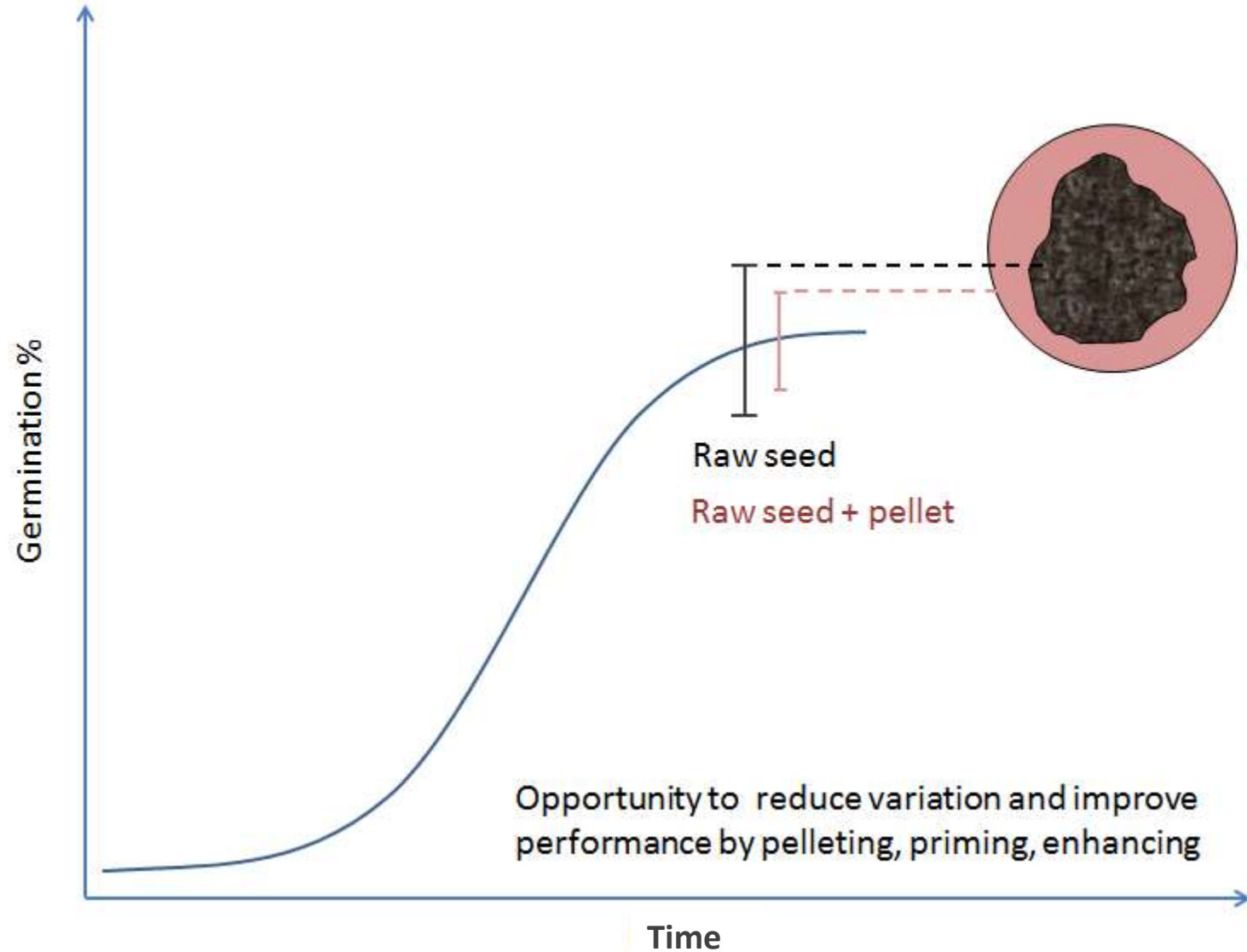


Final Product

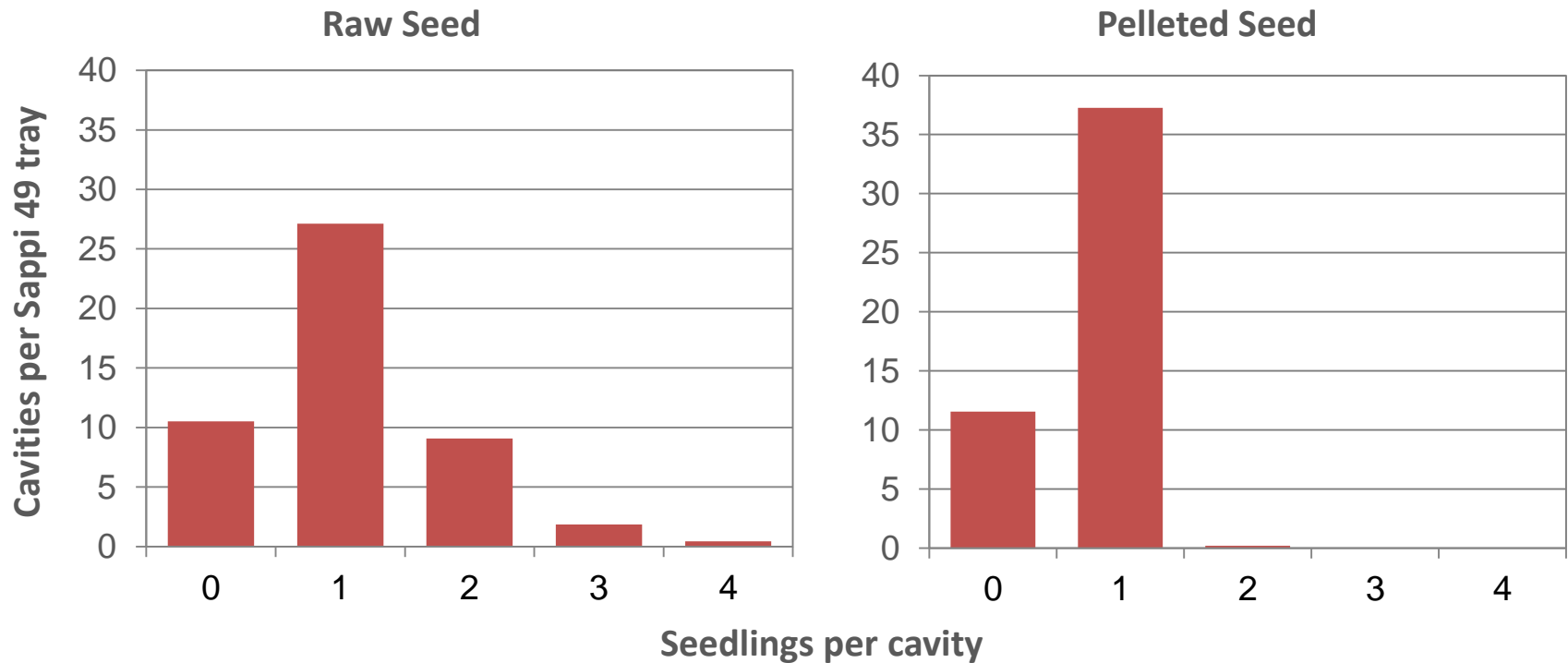


**incotec**  
involved in seeds

# Pelleting for improved sowing



# Pelleting for improved sowing



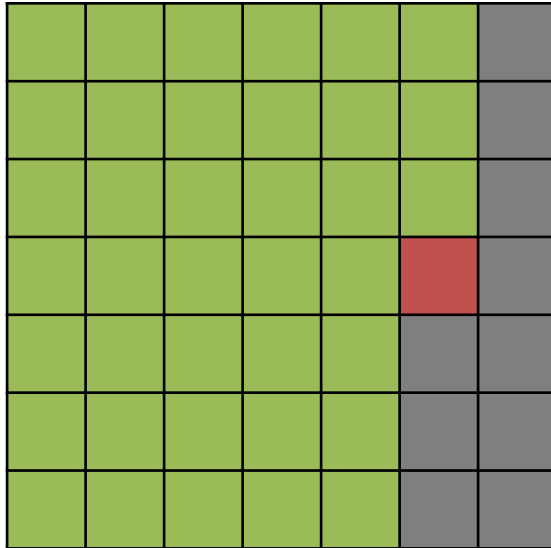
- **Raw seed:**
- Sown 65 seeds per tray (target 59)
- Average 54 seedlings total (83%)
- 13 seedlings to be pricked out, 10 empty cavities to be filled (left overs)

- **Pelleted seed:**
- Sown 49 pellets per tray
- Average 37 seedlings total (75%)
- 15 empty cavities to be filled

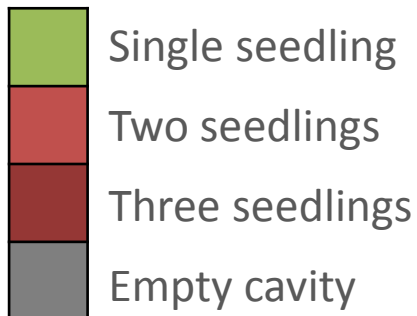
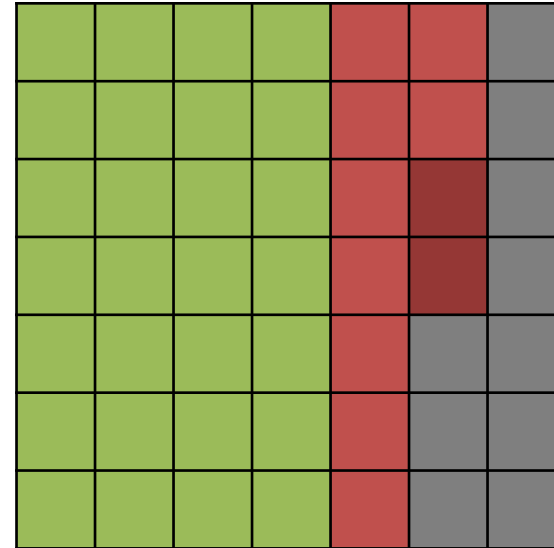
# Pelleting for improved sowing

Seedling distribution in tray:

Pelleted Seed



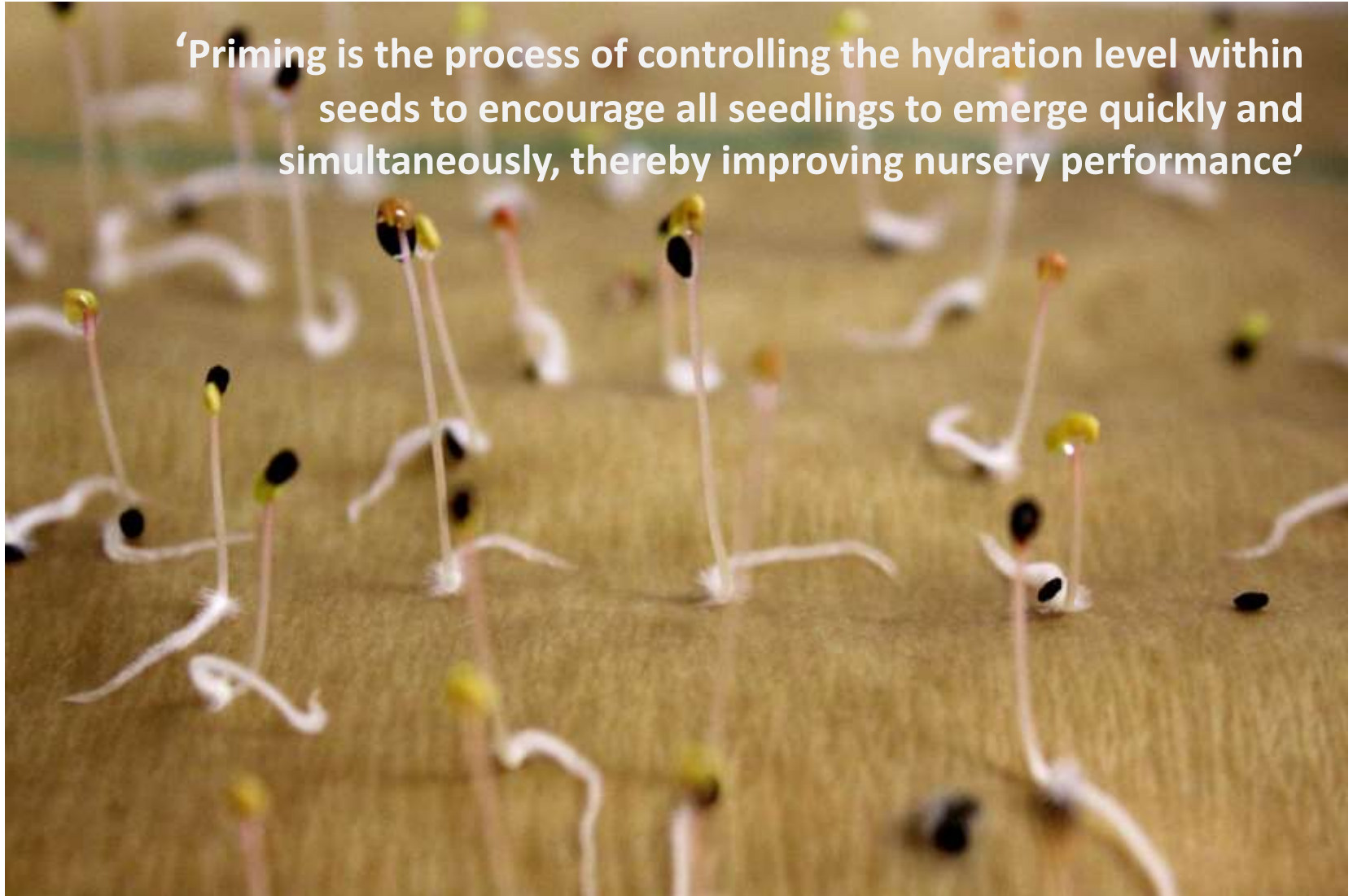
Raw Seed



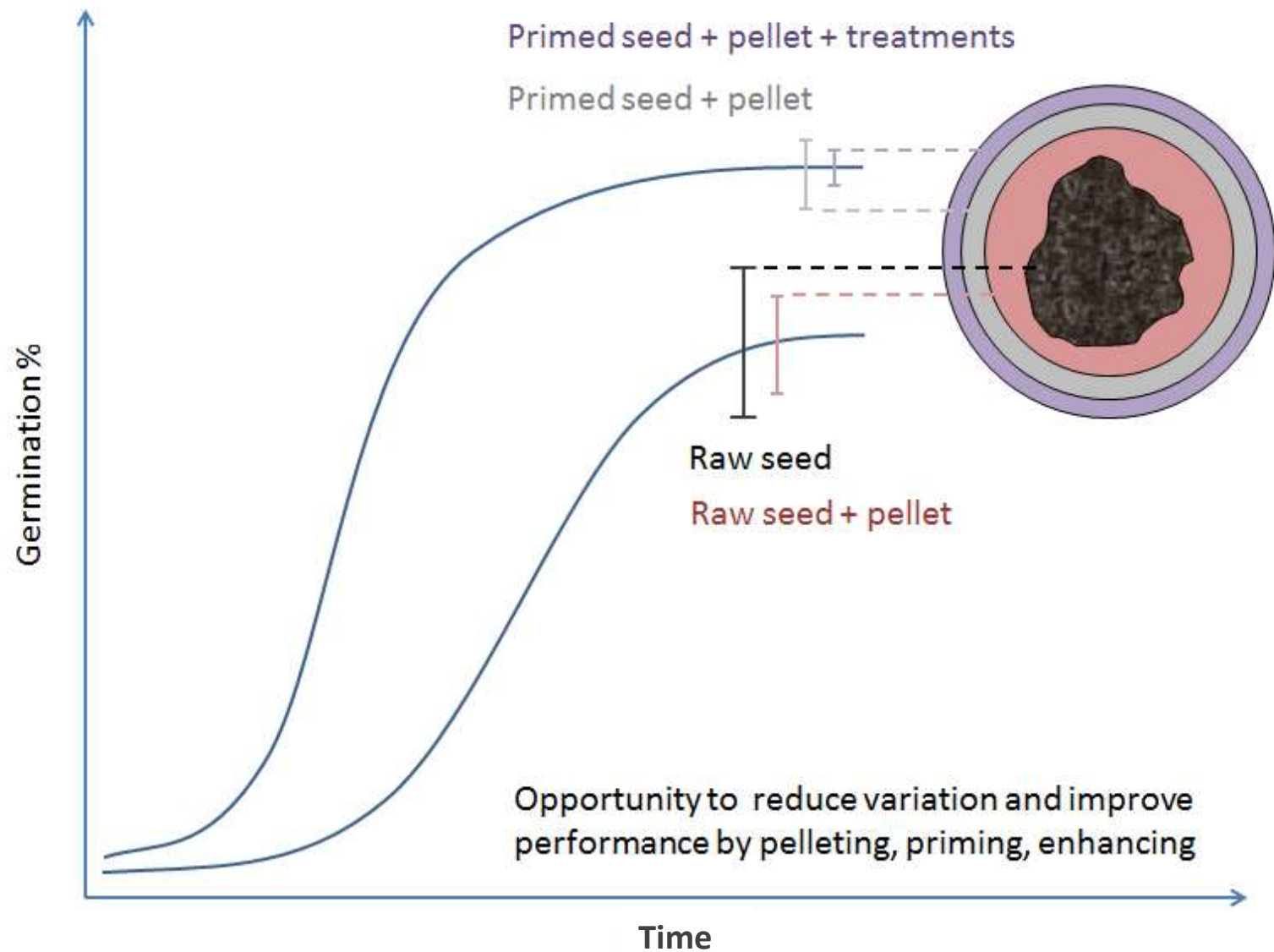
- Pelleted seed – need to prick in from **outside** tray, raw seed **within** tray
- Pellets – no oversow, no waste, consistent
- Prime then pellet?

# Priming for improved germination

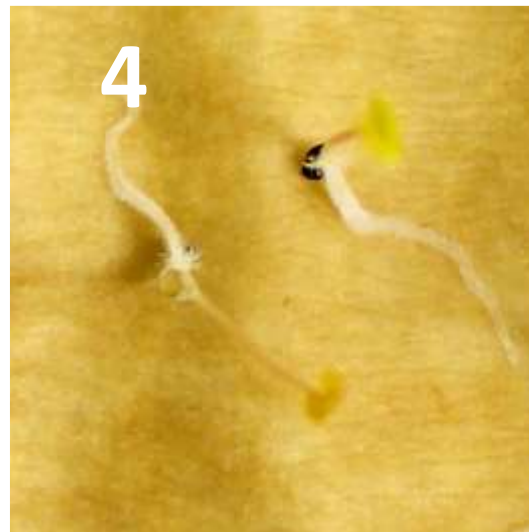
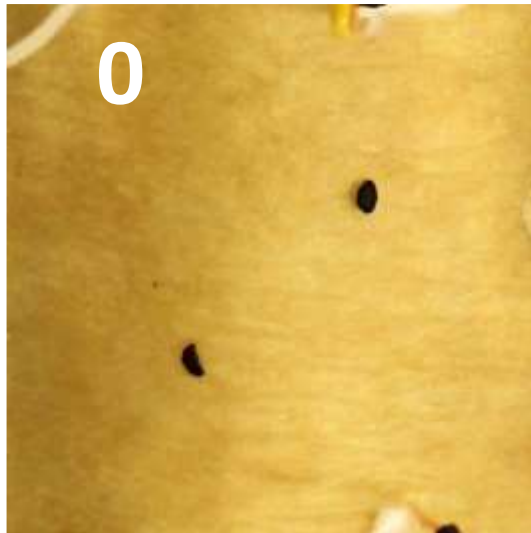
‘Priming is the process of controlling the hydration level within seeds to encourage all seedlings to emerge quickly and simultaneously, thereby improving nursery performance’



# Priming for improved germination



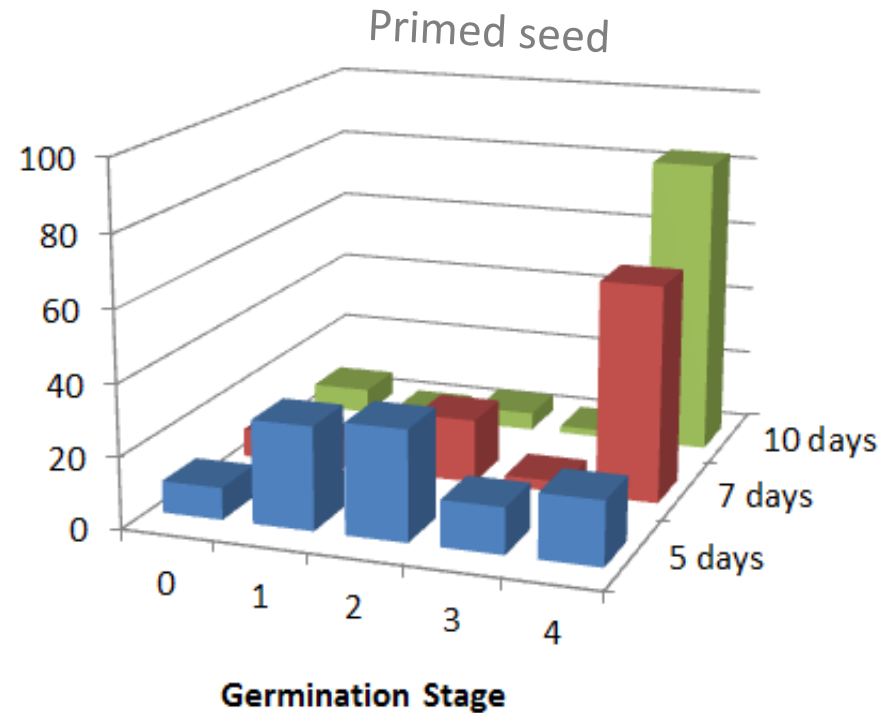
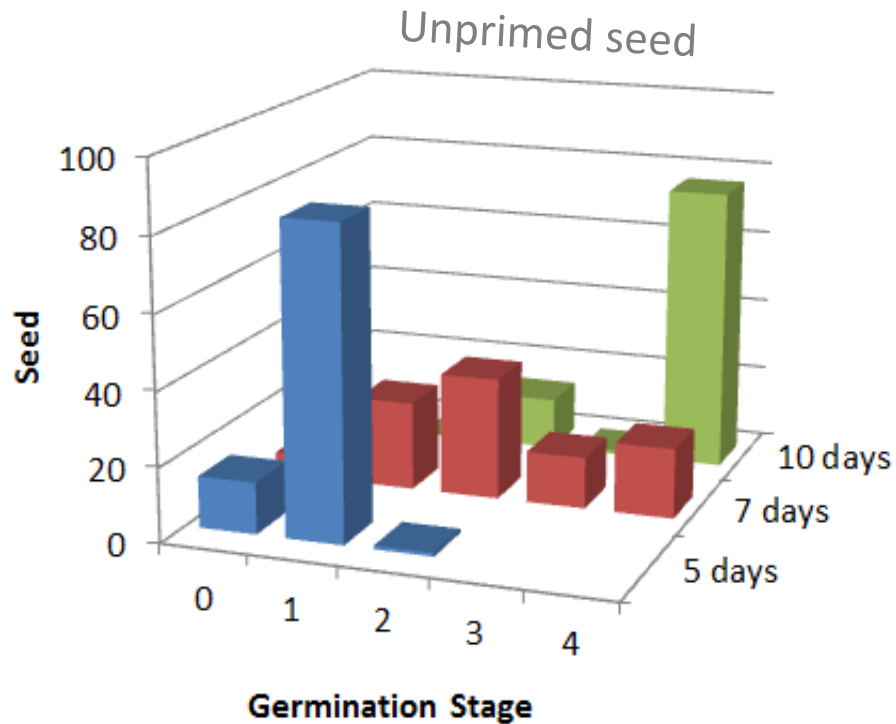
# Priming for improved germination



'Germination is associated with emergence of the radicle through the seed coat. Broadly, a germinated seed will develop into a satisfactory plant under favourable conditions'



# Priming for improved germination

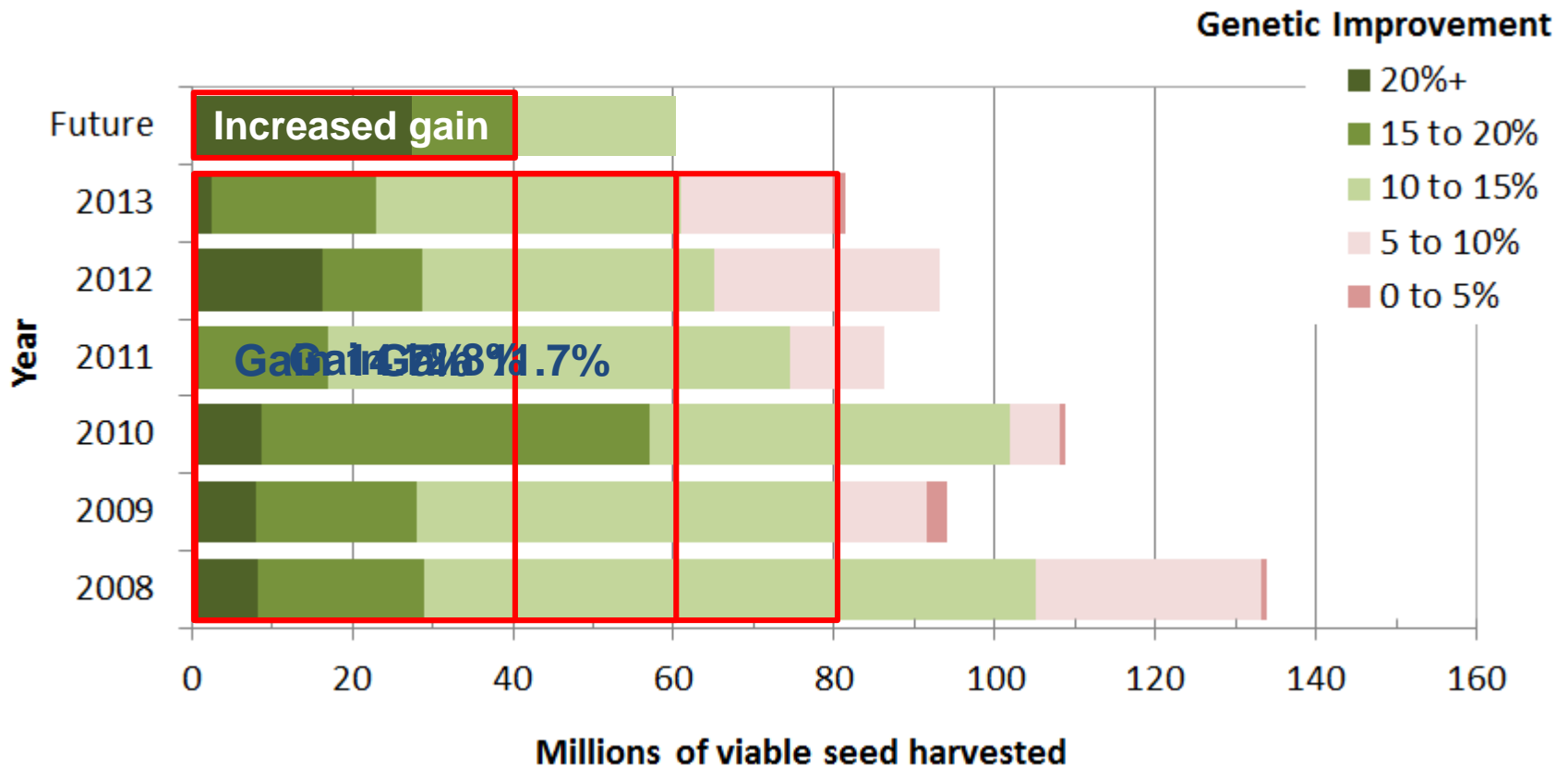


Seed priming has the potential to decrease time required for germination, increase plant uniformity and enhance robustness to germination environment

# What is the impact of improved seed use efficiency?

Example: produce 40 million seedlings with:

- 2 seeds used per seedling produced
- 1.5 seeds used per seedling produced
- 1 seed used per seedling produced





Thank You



**Nonkululeko  
Majola**  
- seed testing

**Sthembiso  
Khoza**  
- seed sales



High quality,  
genetically  
improved  
**seeds**



**Lelethu  
Sinuka**  
- CP seed