


# Where Fundamental Research Translates into Real-World Applications

The background of the slide features a close-up photograph of two young green seedlings with two cotyledons each, emerging from a mound of dark, moist soil. The scene is dimly lit, with a soft light source highlighting the texture of the soil and the vibrant green of the plants. The overall mood is one of growth and scientific observation.

Hydropriming's Molecular Insights Enhancing Seed Shelf Life  
through Academia-Industry Collaboration

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# What kind of seeds do we need?

Fast  
germinating

Stress  
resilient

High  
yielding

Uniform

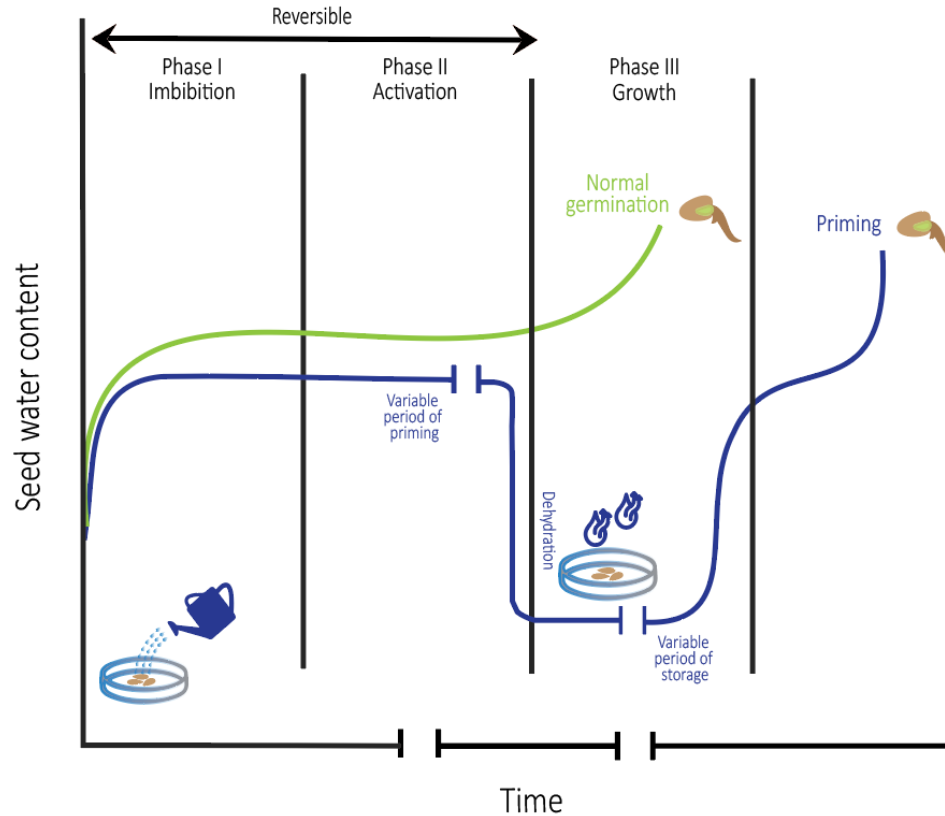
Highly  
nutritious

High  
viability

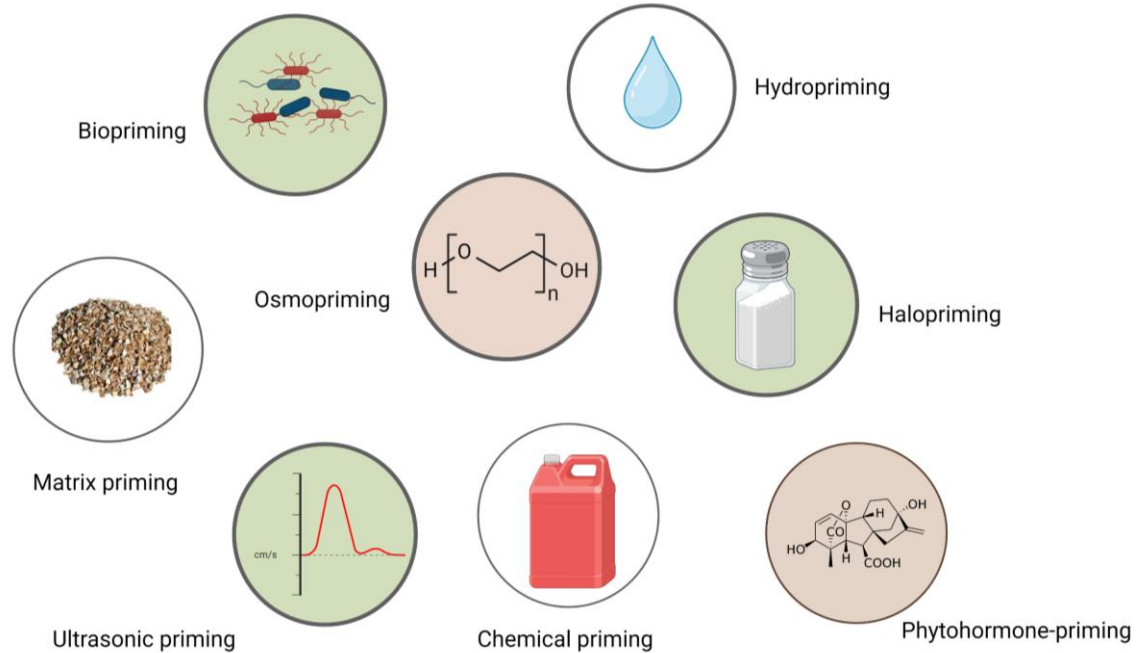
High  
purity

Good  
storability

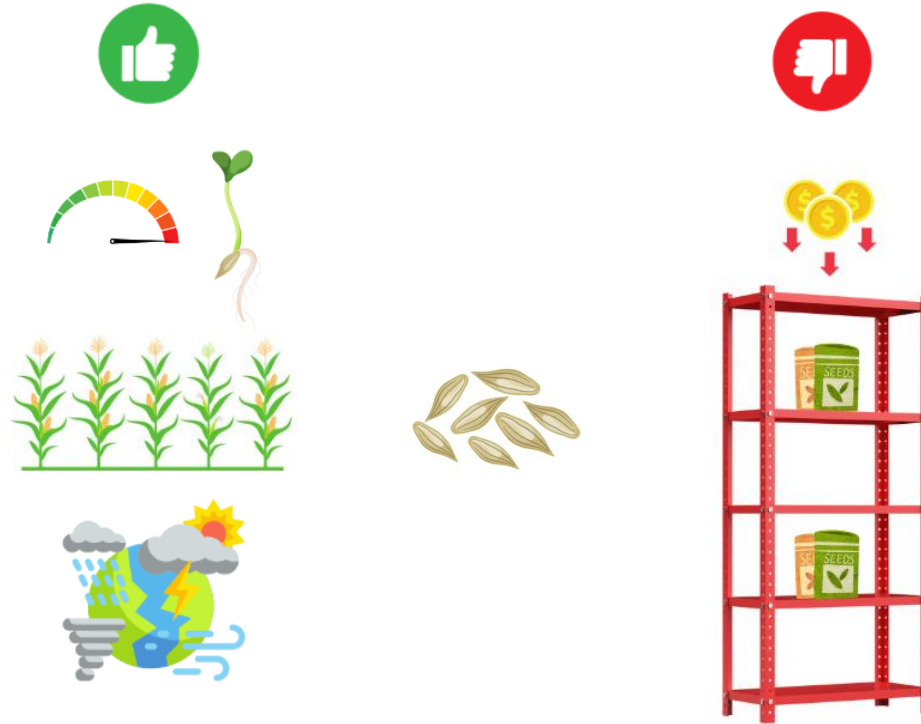
# What is priming?



# Which priming methods are there?



# Pros and Cons

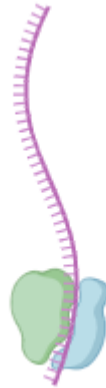


# What happens during seed germination?

DNA



RNA



Protein

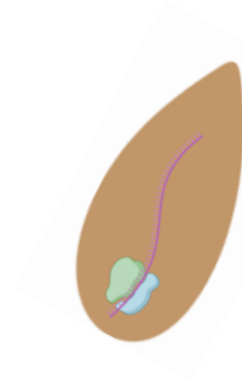
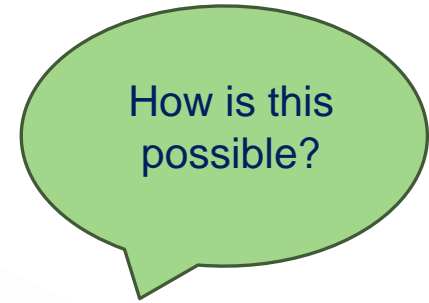


# What do we know about dry seeds?



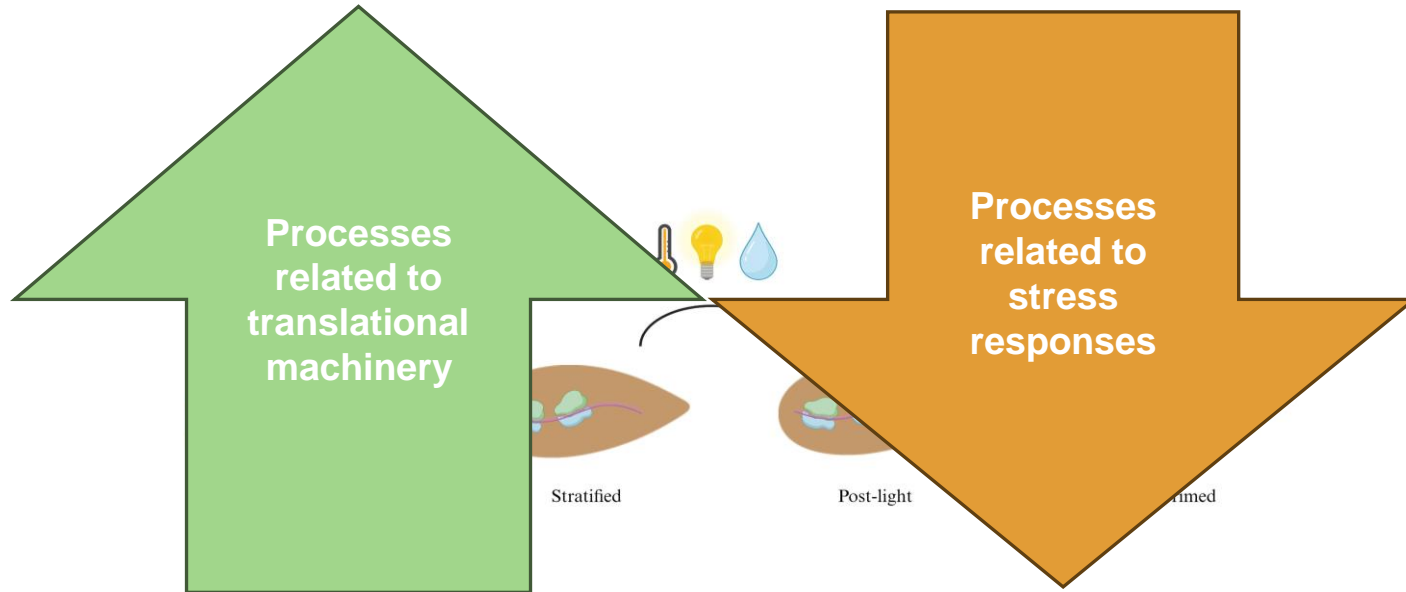
CC BY-SA 4.0

2000 years old date palm seeds  
able to germinate



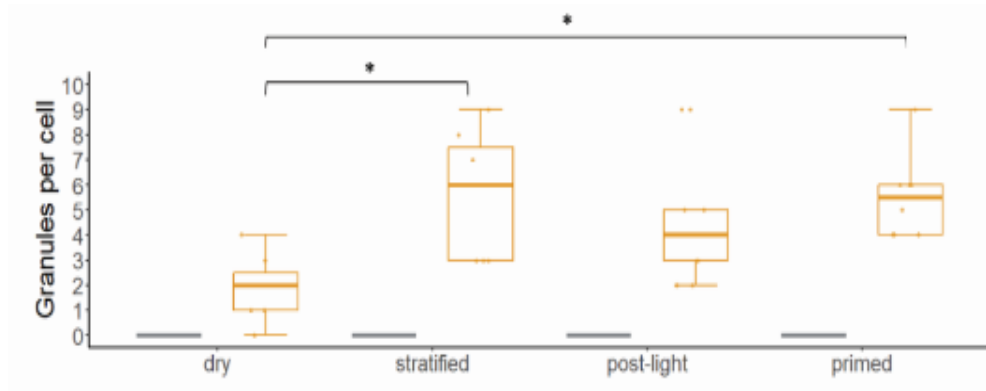
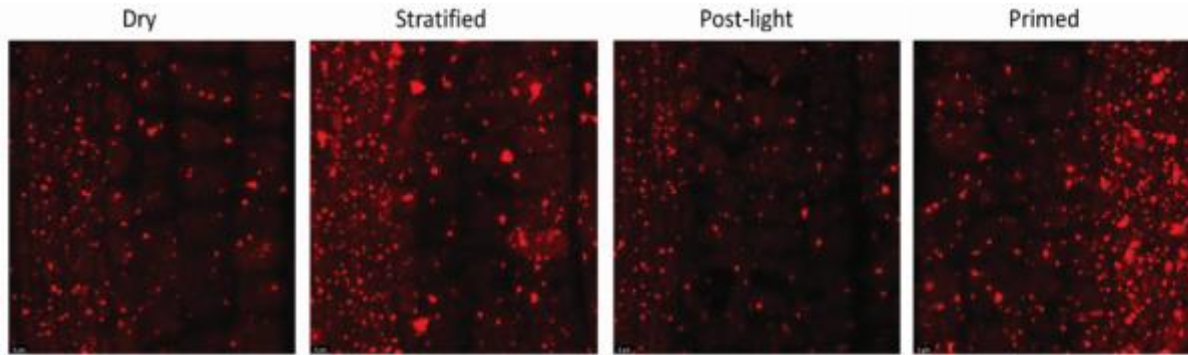
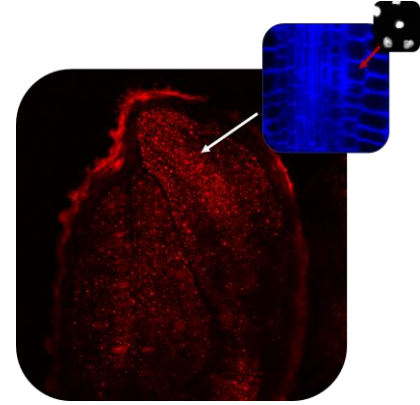
messenger  
RNA (mRNA)

# Behind the scenes of hydropriming





# Which step of priming is the most stressful?



# Potential application

- ❑ Optimizing priming protocols with potential priming/drying molecular markers?
- ❑ What about New Genomic Techniques (NGTs)?
  - ❑ Getting rid of or overexpressing genes that are showing priming associated phenotypes without impaired longevity

# Seeds for the Future Initiative

- The Wageningen Seed Science Centre (WSSC) together with partners created a fund for the Seeds For The Future initiative (SftF) to bridge research and education to the Seed Industry



# Open for collaborations

- ❑ From 1<sup>st</sup> of June Researcher Seed Technology
- ❑ New Topsector Agri & Food TKI (Top consortium for Knowledge and Innovation) project proposals
- ❑ Addressing challenges of Agri & Food Industry
- ❑ Position supported by
  - ❑ Laboratory of Plant Physiology
  - ❑ Plant Breeding Business Unit
  - ❑ Plant Health and Biinteractions Business Unit
  - ❑ Centre for Genetic Resources
  - ❑ Seeds for the Future Initiative

# Thank you for your attention!



# Behind the scenes of hydropriming

