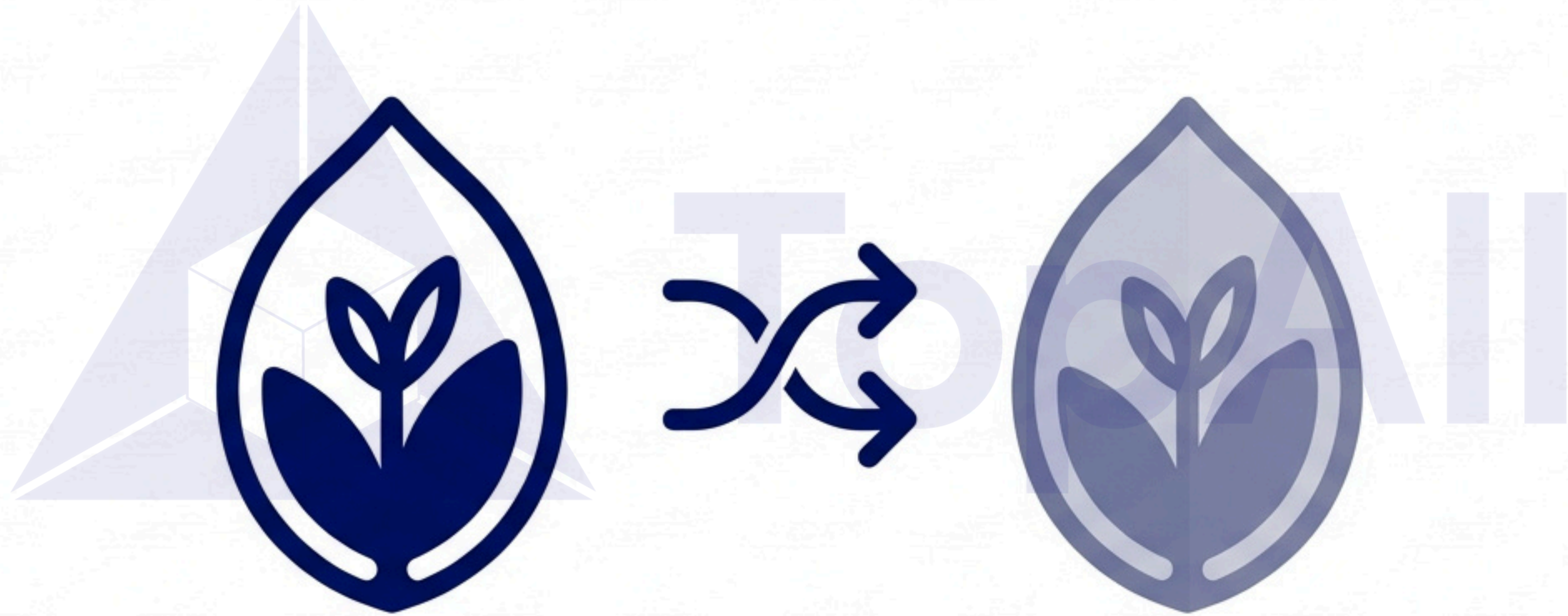


Seeds Without Normal Fertilisation

The genetic blueprint of apomixis and polyembryony.



The Apomictic Anomaly: Seeds Without Fusion

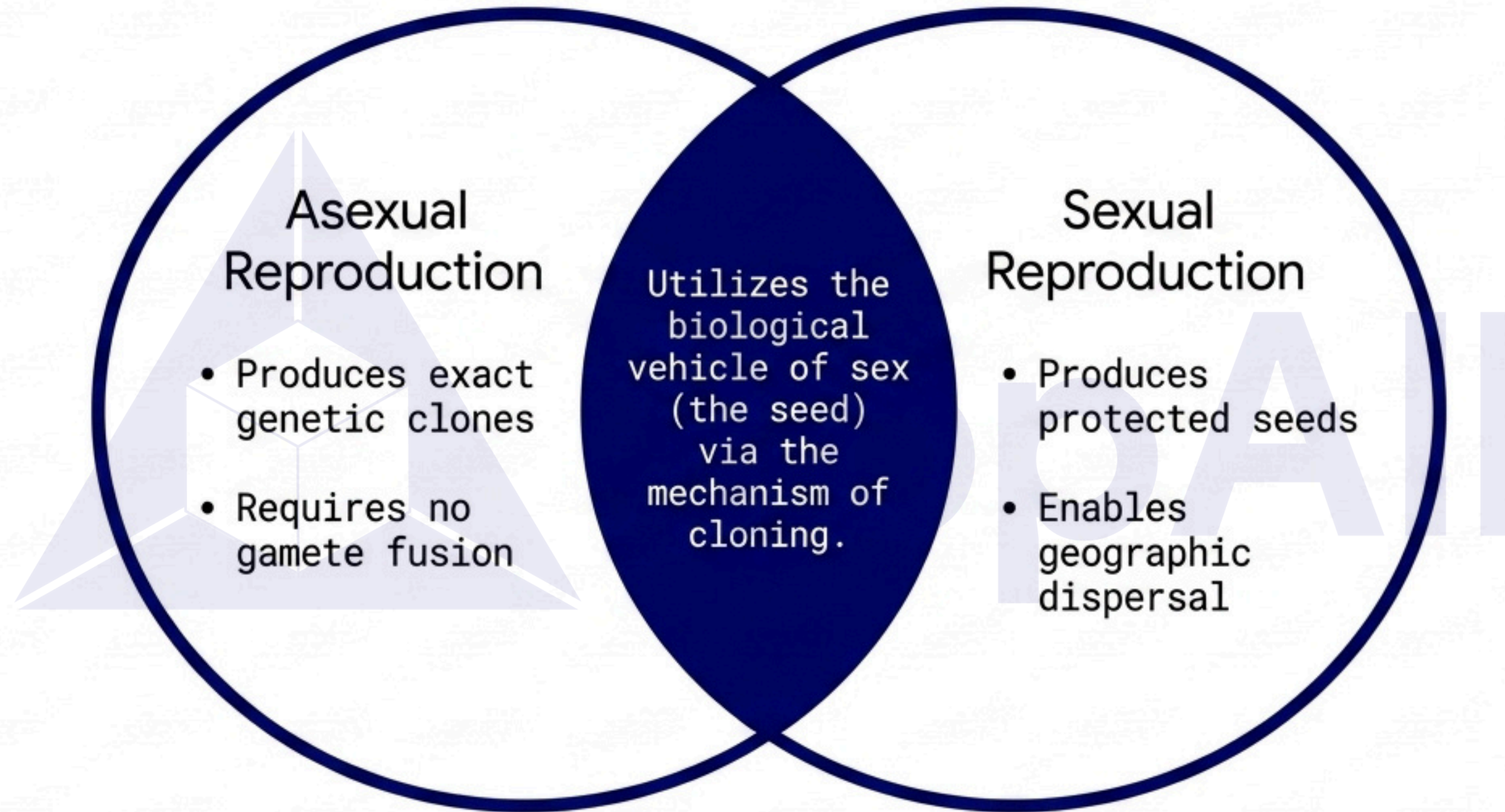
Normal Sexual Reproduction

$$\text{Egg } [n] + \text{Sperm } [n] = \text{Seed } [2n]$$

Apomixis

$$\text{Unfertilized Cell } [2n] = \text{Seed } [2n]$$

Asexual Reproduction Mimicking Sexual Reproduction



Apomixis guarantees the survival advantages of a seed without the genetic variation introduced by fertilization.

Mechanism 1: The Diploid Egg Pathway

Megaspore Mother Cell [2n]



SKIP: Failure of reduction division (Meiosis)

Diploid Egg Cell [2n]



SKIP: Develops without fertilization

Clonal Embryo [2n]

The resulting embryo is a perfect genetic copy of the maternal plant.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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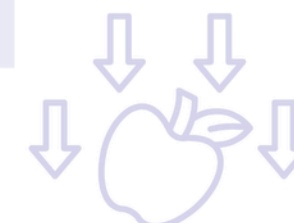
Practice Now



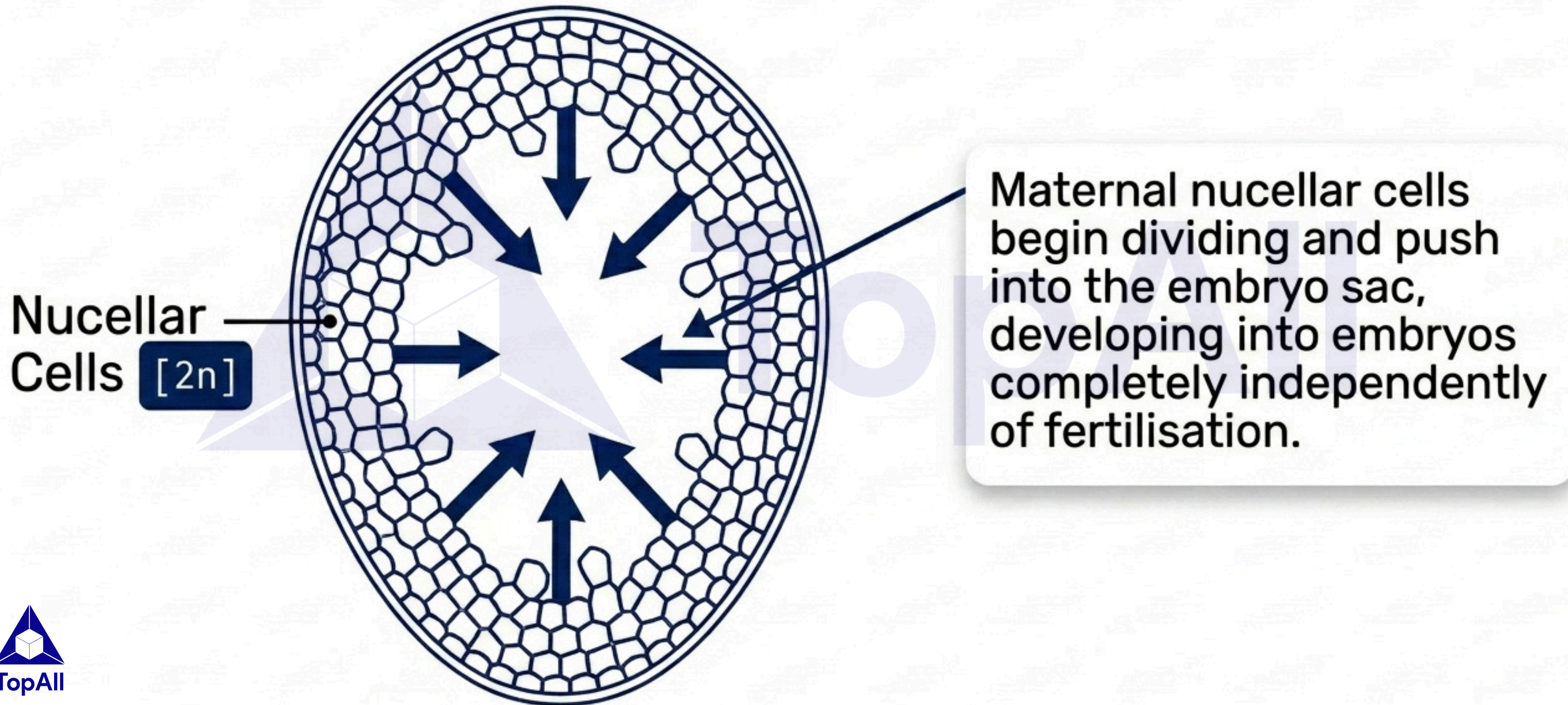
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Key Highlights

- » Free Study Material, Videos & Infographics
- » Push Your Limits with Level-Based Challenges
- » Climb the Leaderboard Among Fellow Aspirants
- » Practice Unlimited MCQs for NEET & JEE
- » Get Clear Explanations, Not Just Marks
- » Track Your Performance Smarter



Mechanism 2: Nucellar Embryos in Citrus & Mango



Polyembryony: Multiple Clones in One Seed

Polyembryony is the occurrence of more than one embryo inside a single seed.



The Multi-Billion Dollar Goal: Apomictic Hybrids

Current Hybrid Industry (Standard)

Extremely high yield and vigor.

Problem: Traits segregate in the next generation.

Farmers must buy new, expensive seeds every single year.

Apomictic Hybrids (The Goal)

High yield locked in permanently.

Core Benefit: No segregation of characters in progeny.

Farmers can replant saved seeds year after year without losing hybrid vigor.

Active global research is currently attempting to transfer apomictic genes into standard hybrid crop varieties.

The Blueprint for Food Security



Apomixis and polyembryony are not just botanical oddities. They are nature's blueprint for creating immortalized hybrid crops.

Mastering this genetic anomaly holds the key to drastically reducing costs for farmers and revolutionizing global food production.



You've Learned the Theory.

Now Let's Test It.

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