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Session 51 : Seed Quality Enhancement



Seed Quality Enhancement

Seed quality is the value of different attributes of seeds which contribute for realizing the total value of seed for which it is used

Seed enhancement is a range of treatments of seeds that improves their performance after harvesting and conditioned, but before they are sown.

Seed enhancement include priming, hardening, pre germination, pelleting, encrusting, film coating etc, but excludes treatments for control of seed born pathogens

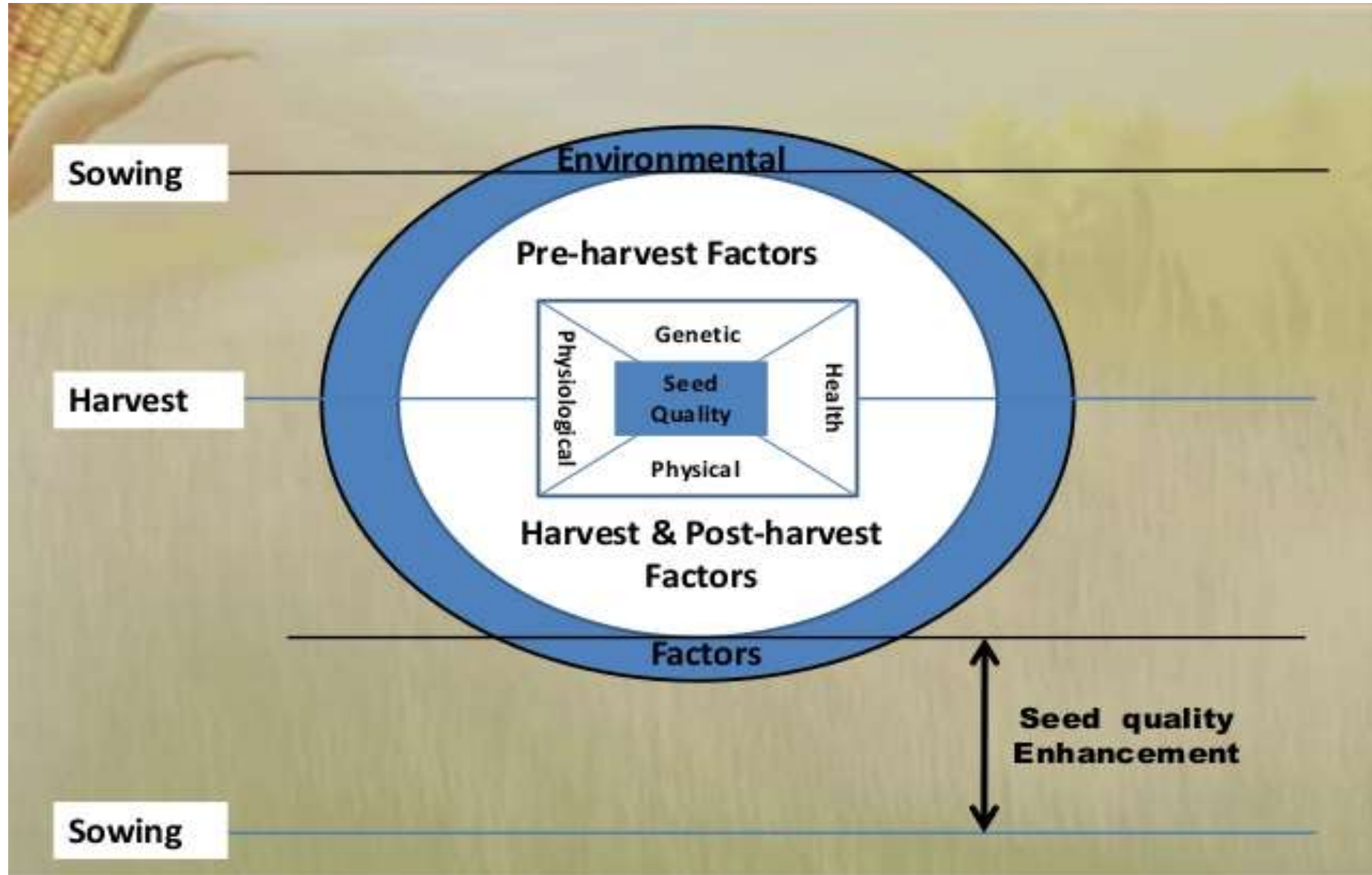
Black *et al.* 2006

Definition: Seed quality enhancement is the post harvest treatment that improve germination or seedling growth or facilitate the delivery of seeds and other materials required at the time of sowing

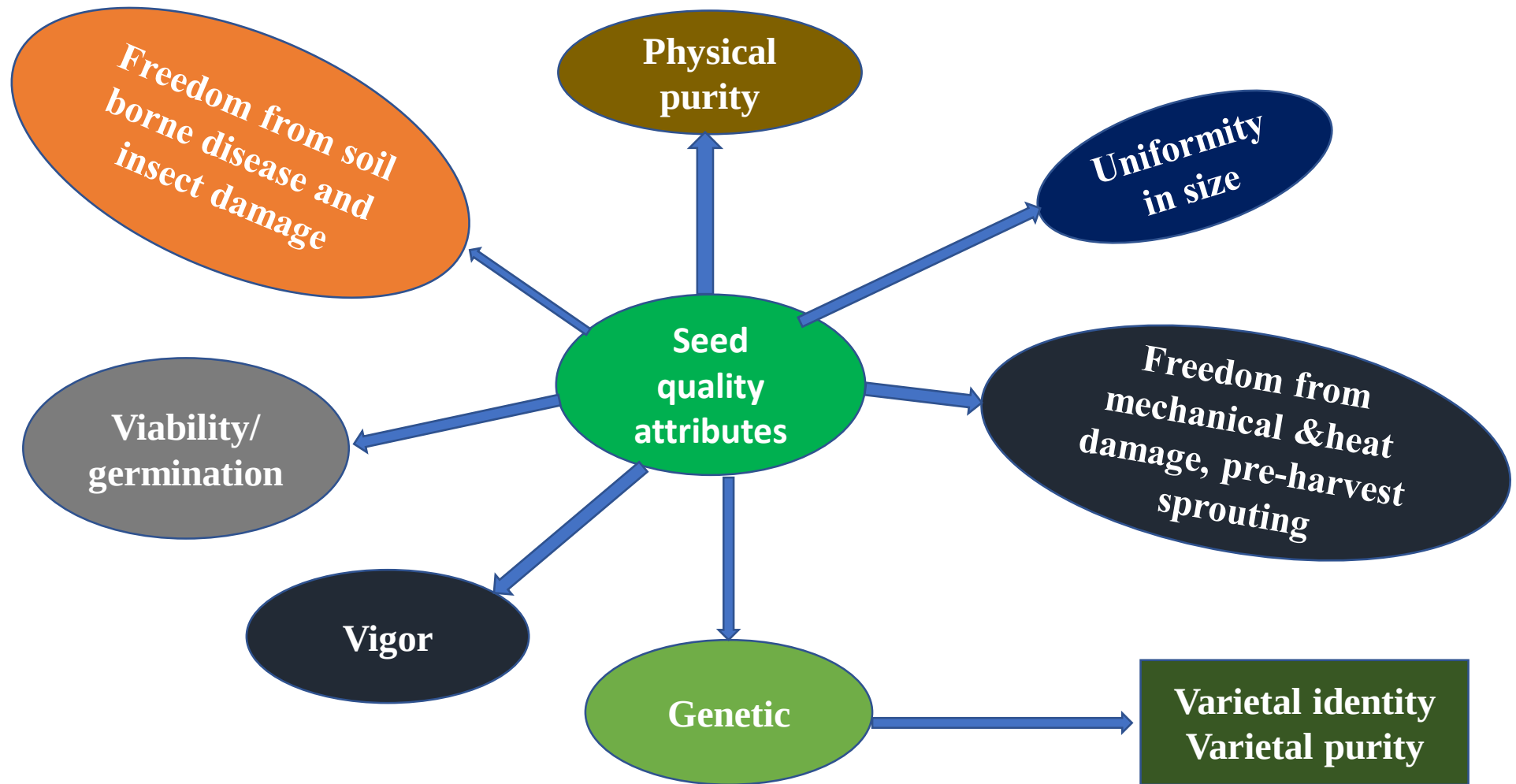
Taylor *et al.*, 1998

Seed Quality Concept- Agarwal 1992

Quality seed production is the main goal for successful agriculture, which demands each and every seed should be readily germinable and produce a vigorous seedling ensuring high yield. “**Care with the seed and joy with the harvest**” and “**Good seed doesn’t cost it always pays**” are the popular adage which enlightens the importance of the quality seed.



Seed quality attributes



Where & When It Is Needed

Problematic seed

High value seed

Specific planting technique

Biotic stresses

Direct seeding

Adverse climatic conditions

History

Recorded references in Vedas and Bible

Ex: Beejamruta

Coated and pelleted seeds traced in Egyptian pyramids

China farmers use to coat paddy seeds with mud balls while sowing in flooded fields

Our ancestors use to practice it

Application of ash, mud or cow dung slurry on seeds

According to Theophrastus, pre-soaked cucumber seeds in milk/ water germinated quicker

Objectives of Seed quality enhancement

Reduced seed rate

Improve germination/seedling growth through manipulation of seed vigour or physiological status of the seed

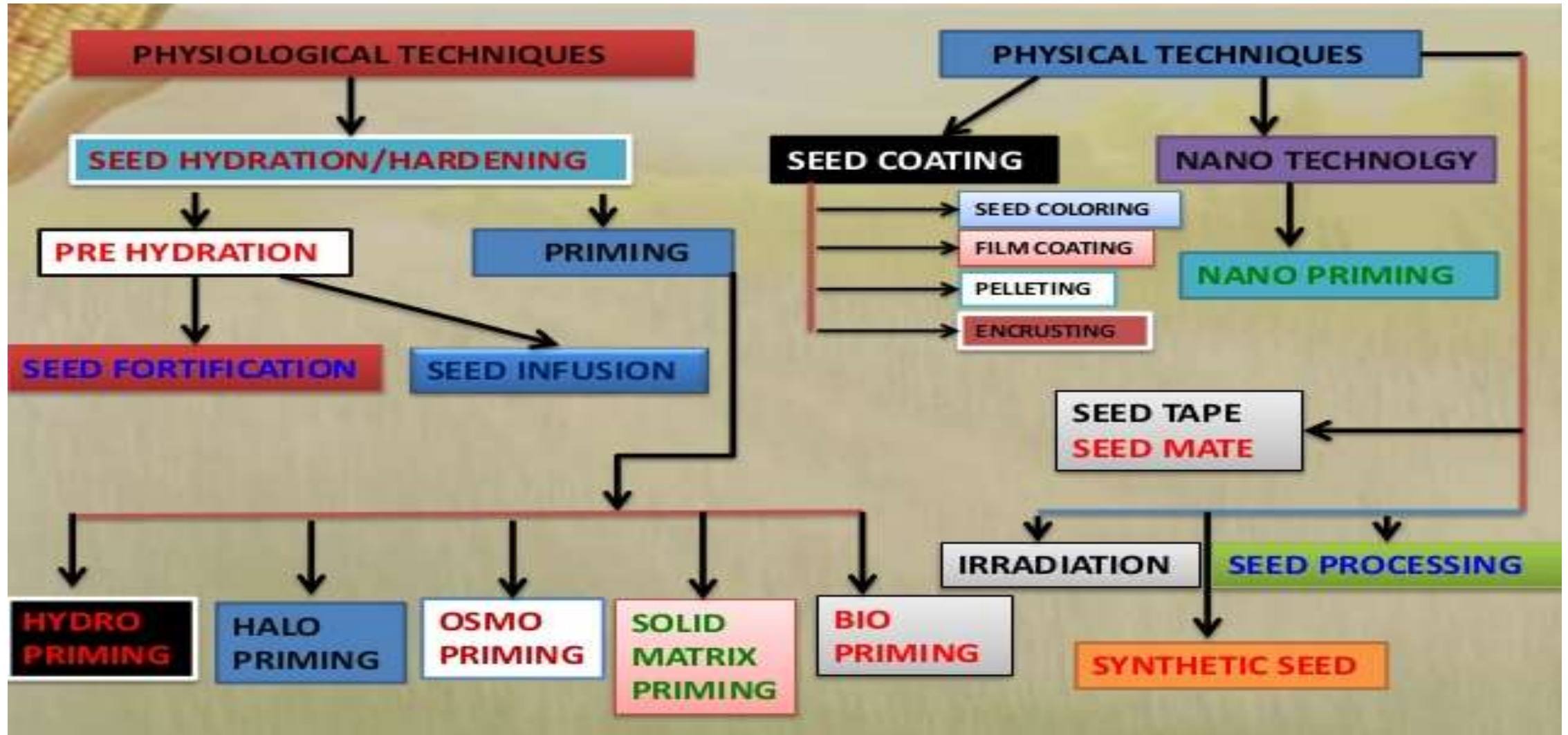
Facilitate seed planting (Pelleting, Coating and Encrusting)

Deliver the materials (other than pesticides) needed at sowing (e.g. nutrients, inoculants)

Remove weak or dead seeds using nontraditional upgrading techniques (density, color, sorting)

Tagging of seeds with visible pigments or other materials/markers for traceability and identity preservation

Seed Enhancement Techniques



Advantage of Seed Quality Enhancement Technology

Reduced seed rate

Early emergence and reduced time of emergence under stress conditions

Supply of growth regulators/nutrients/beneficial microbes

Better nursery management

Helps seedling to dominate weeds in competition for nutrition

Field stand and uniformity

Minimum exposure to toxicant

Direct seeding of conventionally transplanted vegetable seeds.

High turnover

Conclusion

Seed quality enhancement approaches has been used to improve germination, reduce seedling emergence time, improve stand establishment and yield.

The beneficial effects of quality enhancement techniques have been demonstrated for many field crops.

It is the best solution of germination related problems especially when crops are grown under unfavorable conditions and prompts market value of seeds.



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*Thank
you*

