



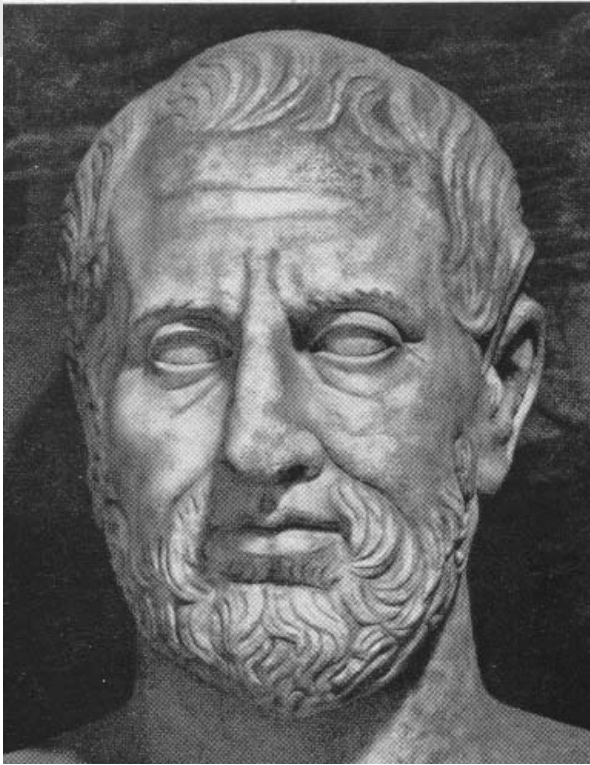
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# Theophrastus, the Founder of Seed Science – his accounts on seed preservation

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Theophrastus of Eressus

Theophrastus of Eressus (371-286 BC) is widely recognised as the Father of Botany (Morton, 1981) and the co-founder (with Aristotle) of the science of Biology (344 BC, Thanos, 1994).

In his extant botanical writings, *History of Plants (HP)* and *Causes of Plants (CP)* Theophrastus dealt extensively with seeds and was appraised as the father of germination research (Evenari, 1980/81). 'Germination from seed is common to all seed plants, since all seeds are able to germinate. That they do so is not only evident to sense, but also in regard to reason, this is perhaps necessary: nature not only does nothing in vain, but does so least of all in what is primary and fundamental; and seed is both primary and fundamental' (*CP A, 1, 1*). In addition to numerous quotes on seed production, dispersal, morphology, germination and soil seed banks, Theophrastus also included several important accounts on seed preservation, which are outlined below:

(1) Last in all plants comes the seed. This possesses in itself moisture and heat, and if these vanish, the seeds become sterile, like eggs in a similar case (*HP 1, 11, 1*).

(2) In regard to preservation, some seeds are more potent than others; among the more vigorous ones are coriander, beet, leek, cress, mustard, rocket, savory, and in general all plants of pungent taste; among the less persistent: chives – which will not persist – orach, basil, pumpkin, cucumber; in general the summer herbs persist less than the winter ones (*HP 7, 5, 5*).

(3) No seed will keep more than four years so as still to be of use for sowing; although two-year-old seeds are better than three-year-old ones, in some cases seeds keep very well for three years but after that time deterioration begins (*HP 7, 5, 5*).

(4) Each kind of seeds has a definite lifespan before they become unable to germinate; however, seeds of the same kind may differ in their capacity according to the place in which they are stored. For instance, in Cappadocia at a place called Petra, they say that seeds remain fertile and fit for sowing even for forty years (*HP 8, 11, 5*).

(5) That region is elevated and always exposed to fair winds and breezes [cool and dry] ... They also say that in Media and other elevated countries, stored seeds persist for a long time (*HP 8, 11, 6*).

(6) There appears to be a kind of earth in some places as in Olynthos and Cerinthos in Euboea, which when sprinkled over wheat seeds improves their preservation; this makes the seed inferior for food and fuller in appearance; the earth is dusted in the proportion of 1:48 per volume of seeds (*HP 8, 11, 7*).

In summary, according to Theophrastus, dry seeds are alive (like eggs) due to their inherent moisture and heat (energy); the life span of a dry seed depends on both the species it belongs (phylogeny) and the ambient conditions of storage (environment). Seed longevity (short or long) is an inherent characteristic of the plant species (examples furnished) and can vary from less than one year to four years under common conditions of storage. However, accounts of increased or extreme viability (up to 40 years) are given for seeds of important cultivated plants stored dusted or under cool and dry conditions.

## References

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