

EFFECT OF SOAKING AND PLACEMENT OF SEED ON GERMINATION AND SEEDLING EMERGENCE IN LITCHI

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Abstract: An experiment was conducted at ICAR-NRC on Litchi, Muzaffarpur during 2018 to assess the effect of soaking of seed, orientation and depth of seed sowing on germination and seedling emergence in litchi. Result indicated that soaking of seed in water before sowing had improved seed germination in litchi. The maximum germination was found in Gandaki Lalima with 92.58% as compared to without soaking (62.75%). There was a significant reduction in seedling emergence with an increase in burial depth. Seeds sown at 1 cm depth showed the highest seedling emergence with an average percentage of 79.81. The highest seed germination was found in lay flat orientation when seeds were sown at the depth of 1 cm. Litchi seedling emergence was greatest and most rapid when seeds were sown 1 cm deep and positioned flat, on their sides.

Keywords: Effect, Germination, Litchi, Seed

REFERENCES

- Aou-ouad, H.E., Medrano, H., Lamarti, A. and Gulias, J.** (2014). Seed germination at different temperatures and seedling emergence at different depths of *Rhamnus spp.* *Cent. Eur. J. Biol.* 9:569–578.
- de Andrade, R.A., Martins, A.B.G. and Oliveira, I.V.M.** (2004). Influence of the substrate in germination of lychee seeds. *Rev. Bras. Frutic.* 26:375–376.
- Elfeel, A.A.** (2012). Effect of seed pre-treatment and sowing orientation on germination of *Balanitesaegyptiaca* (L.) Del. seeds. *Am-Euras. J. Agr. and Environ. Sci.* 12:897–900.
- Harb, A.M.** (2013). Reserve mobilization, total sugars and proteins in germinating seeds of durum wheat (*Triticum durum* Desf.) under water deficit after short period of imbibition. *Jordan J. Biol. Sci.* 6:67–72.
- Huang, S.Q., Liu, G.X. and Han, J.G.** (2007). Effect of seed mass and sowing depth on seedling establishment. *Pratacultural Sci.* 24:44–49. (In Chinese).
- Lal, N., Gupta, A.K., Kushwah, N.S. and Nath, V.** (2017a). Sapindaceous Fruits: In Horticultural Crops of High Nutritive Values, pp 339-370, edited by KV Peter. Brillion Publishing, New Delhi.
- Lal, N., Gupta, A.K. and Nath, V.** (2017b). Fruit retention in different litchi germplasm influenced by temperature. *International Journal of Current Microbiology and Applied Science.* 6(12):1189-1194.
- Lal, N., Singh, A., Gupta, A.K., Marboh, E.S., Kumar, A. and Nath, V.** (2019b). Precocious Flowering and Dwarf NRCL-29-A New Genetic Stock of Litchi (*Litchi chinensis* Sonn.). *Chem. Sci. Rev. Lett.* 8 (32): 206-210.
- Lal, N. and Vishal, Nath.** (2020). Effect of plant age and stress on flowering in litchi (*Litchi chinensis*). *Current Horticulture.* 8 (1): 24-27.
- Lal, N., Gupta, A.K., Marboh, E.S., Kumar, A. and Nath, V.** (2019c). Effect of pollen grain sources on fruit set and retention in ‘Shahi’ litchi. *Multilogic in Science.* 9(29): 152-156.
- Lal, N., Gupta, A.K., Marboh, E.S., Kumar, A. and Nath, V.** (2019d). Effect of Pollen Grain Sources on Success of hybrids in ‘Bedana’ Litchi. *International Journal of Bio-resource and Stress Management.* 10(3):241-245.
- Lal, N., Marboh, E.S., Gupta, A.K., Kumar, A., Dubedi Anal, A.K. and Nath, V.** (2019a). Variation in leaf phenol content during flowering in litchi (*Litchi chinensis* Sonn.). *Journal of Experimental Biology and Agricultural Sciences.* 7(6): 569 – 573.
- Nath, V., Kumar, A., Pandey, S.D. and Tripathi, P.C.** (2015). Litchi in winter season- a way forward. *Indian Horticulture.* 59: 26-27.
- Nagraj, K., Diwan, G. and Lal, N.** (2019). Effect of fruit load on yield and quality of litchi (*Litchi chinensis* Sonn.). *Journal of Pharmacognosy and Phytochemistry.* 8(6): 1929-1931.
- Ray, P.K. and Sharma, S.B.** (1987). Growth, maturity, germination and storage of litchi seeds. *Sci. Hort.* 33:213–221.
- Schmidt, L.H.** (2000). Guide to handling of tropical and subtropical forest seed. Danida For. Seed Ctr., Humlebaek, DK.
- Thomas, K.M.** (1978). Influence of seed size and planting orientation on the germination and growth of coconut seedlings in the nursery. *Indian J. Agr. Sci.* 48:63–67.
- Xia, Q.H., Chen, R.Z. and Fu, J.R.** (1990). Physiological changes of litchi seeds before 10 days of maturity. *Plant Physiol. Commun.* 3:37–38.
- Zhang, C., Wu, J., Fu, D., Wang, L., Chen, J., Cai, C. and Ou, L.** (2015). Soaking, Temperature, and Seed Placement Affect Seed Germination and Seedling Emergence of *Litchi chinensis*. *Hortscience.* 50(4):628–632.

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