

Photogrammetric assessment of the mesocotyl length of corn hybrids for use in simulation models

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Summary

During the germination of corn (*Zea mays* L.) the middle portion of the embryo, known as mesocotyle, is responsible for raising the coleoptyle to the land surface. To model the germination-emergence sub-period process, it is necessary to assume that a seedling increases its elongation as a function of temperature, humidity of the medium and its previous length before it exhausted its reserves. The aim of this investigation is to know if the embryonic length of the maize mesocotyle, or initial modeling length, presents significant differences between intra and inter commercial hybrids, in view of improve over the initial modeling of the crop. The population of commercial hybrids in Argentina was investigated during the period 1964 to 2019, taking from it a representative random sample on which the length study was carried out using a photogrammetric technique. The embryonic length of the maize mesocotyle can be considered as a significantly invariant magnitude of 1.78 mm (+/- SD = 0,01). Using this value as a constant in crop simulation models simplifies its application, avoiding the incorporation of this particular information for each hybrid.

Key words: Mesocotyle, length, hybrids, modeling, photogrammetry.