A comparison of equilibrium moisture content between TopCross high oil and conventional maize seeds

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Increased oil levels in TopCross high oil maize (HOM) may affect seed drying properties and moisture levels for safe long-term storage. The objective of this study was to compare the equilibrium moisture content (EMC) values between TopCross HOM and conventional maize seeds. The EMC of seed samples from the two components of a TC Blend (the pollinator and grain parent) and its conventional hybrid counterpart were determined using saturated salt solutions. The EMC values for seed of the conventional maize and the TC Blend grain parent were similar and slightly higher than those of the TC Blend pollinator, except at the highest relative humidity (100%). The lower seed EMC values of the TC Blend pollinator may be attributed to larger relative germ size and higher oil content. The germ proportion of the seed was 23-24% for the TC Blend pollinator, whereas the germ proportion of the seed was 15-18% for the TC Blend grain parent and 11-12% for the conventional maize. Seed from the TC Blend pollinator contained 56 and 99 g kg⁻¹ more oil than seed of the TC Blend grain parent and conventional maize, respectively. Results of this study suggest that seeds from HOM lines may need to be stored at lower moisture contents than seeds from conventional maize lines.