Maize (*Zea mays* L.) is worldwide used as food and feed, supplying carbohydrates and proteins. However, it is deficient in tw[...]
essentials amino acids namely; lysine and tryptophan. Quality Protein Maize (QPM) has about twice the amount of lysine and [...]
tryptophan of normal maize and can be used to correct this deficiency in protein quality. It was developed by combining the g[...]
systems of the mutant opaque-2 (O2) gene and O2-endosperm genetic modifiers. Current efforts are to expand QPM cultivatio[...]
regions experiencing malnutrition. In those regions, maize is produced under stresses among which low N and drought are the [...]
prevalent. However, the effects of those two stresses on QPM characteristics are not known. To study how N and drought affe[...]
major characteristics of QPM, 14 QPM inbred lines were received from CIMMYT-Kenya and used to produce 41 Single Cros[...]
Hybrids (SCHs). The 41 SCHs and one normal check were evaluated at Kiboko in Kenya in 2005 and 2006 under optimum, l[...]
nitrogen and drought environments and at Rubona in Rwanda in 2005 under optimum and low N environments. Observations [...]
performed on endosperm modification, protein and tryptophan concentrations in grain. The results showed that low N partiall[...]
reduced the action of O2-endosperm modifiers making QPM endosperm partially soft and opaque. Drought suppressed or red[...]
significantly the action of O2-endosperm modifiers making QPM endosperm chalky, opaque and soft. Low N and drought red[...]
significantly protein concentration in grain of genotypes including the non-QPM check whereas they increased the levels of [...]
tryptophan except for the non-QPM check. It appeared therefore that nitrogen particularly water played vital roles in modifica[...]
O2-maize endosperm. Moreover, QPM genotypes did not lose their nutritional advantages in stressed environments. The adve[...]
effects of low N particularly drought on endosperm modification may have negative impact on adoption of QPM in areas pro[...]
the two stresses and where maize is the major source of food because harvested grain will be inappropriate for human consum[...]
However because of important genetic variability among genotypes, it is possible to select genotypes less susceptible to low N[...]
drought by using optimum and stressed environments.