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## CONTRIBUTION OF PLANT COMPONENTS FOR SILAGE AND GRAIN PRODUCTION IN BRAZILIAN MAIZE CULTIVARS.

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Presently, a large number of maize (*Zea mays* L.) hybrid cultivars are developed in Brazil for grain production. Less effort has been made considering aspects related to forage production and quality. In this study, phenotypic traits were evaluated in 14 Brazilian maize cultivars (chosen by the harvest index: grain dry matter/whole-plant dry matter), for the contribution of plant components (stalks, leaves, husks, cobs and kernels) to the grain/forage relationship and some silage quality traits (pH, protein content and silage non-visible losses). This information together with estimated correlation coefficients among these variables, should provide useful information for development of selection criteria for maize cultivars adapted to grain and/or silage production. The major plant components of the forage at silage stage were on average 37.5% kernels, 21.0% stalks, and 18.1% leaves, 14.9% husks and 8.5% cobs. The components with greatest content in crude protein were grains (9.65%) and leaves (8.89%), the other components were less than 3% each. All maize cultivars evaluated showed good quality characteristics for silage production with silage pH between 3.71 and 3.98. Silage non visible losses were very low (0.61 %). Ear diseases ranged from 3.6 % from 30.9 % with a negative correlation to husks content ( $r = -0.27$ ). The high proportion of broken plants (11.5%) in plots harvested for grain production showed that care should be taken in the choice of some cultivars for this purpose. Plants with low ear placement showed a tendency for high grain production ( $r = -0.33$ ). The proportion of stalks, leaves and husks components were negatively correlated with the cobs ( $r = -0.80, -0.30$  and  $-0.70$ ) and grain ( $r = -0.76, -0.56$  and  $-0.70$ ), components in the forage dry matter. There was a positive correlation between forage dry matter production and grain dry matter production ( $r = 0.58$ ). Protein productivity was positively correlated with grain ( $r = 0.98$ ) and forage ( $r = 0.59$ ) dry matter production, and negatively correlated with ear number per plant ( $r = -0.58$ ). The small variation among genotypes in protein content, and the absence of a relationship among quality traits and plant components, demonstrate the need for evaluation of genotypes with greater variability for protein content and quality. Observed differences among cultivars for various plant components demonstrate that forage composition does vary as a function of genotype. The value of harvest index in evaluation of cultivars needs more information related to animal acceptability and digestibility, although among cultivars of similar productivity, preference should be given to those with higher harvest index.

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