Starch from waxy corn is employed as thickener for different food products. Most of this type of corn is planted in temperate areas. The objects of present study were: i) Characterize for physical and functional properties, samples from maize cultivars coded Wx127 and LMD/Wx, homozygous and heterozygous for waxy gene, respectively, and both adapted to Venezuelan tropical conditions; and ii) Evaluate consumers preference for “chicha” made from these corn cultivars through an affective sensory test. Chicha is a traditional beverage made from corn or rice grains. In all tests, grain samples of a normal corn widely used in Venezuela were used as reference. LMD/Wx presented a test weight of 898 g/L and a +4 mesh particles predominant proportion of 75.8%, while Wx127 presented a test weight of 785g/L and a +6 mesh particles predominant proportion of 43.5%. All cultivars presented good grit yields for corn flour production through dry milling, being the best LMD/Wx with 78.1%. Amylose contents were 22.1%, 17%, and 2.2% for normal corn, LMD/Wx, and Wx127, respectively. In the amylograph profile, Wx127 cultivar obtained higher values of peak viscosity, hold strength, breakdown and pasting, and lower values for final viscosity, setback and consistency. Sensorial profile revealed that waxy cultivars has similar levels of acceptance than normal corn for appearance, aroma and flavor, however, for texture and global quality LMD/Wx cultivar was significantly superior (p<0.05). These results are a contribution to the development of specialty corns for alternative use in Venezuela.