Provitamin A-biofortified maize is currently being evaluated for use as a complementary strategy to alleviate vitamin A deficiency, which is prevalent in developing regions, particularly sub-Saharan Africa. Apart from the differences in provitamin A content, the nutritional composition of provitamin A-biofortified maize compared to white maize is hardly known. This study aimed to determine the provitamin A composition of provitamin A-biofortified maize varieties and evaluate the overall nutritional composition of the biofortified varieties. Carotenoid composition was determined by HPLC and the other nutrients by standard methods. The total provitamin A content of the biofortified maize varieties ranged from 7.3-8.3 μg/g, with total β-carotene ranging from 3.5-3.6 μg/g, and β-cryptoxanthin from 3.7-4.8 μg/g, dry basis (db). The total provitamin A content of the biofortified varieties was lower than the set target of 15 μg/g, db. When compared with a white maize variety (reference), the biofortified varieties were higher in starch, fat and protein, but were lower in iron. The biofortified maize varieties were better sources of most of the essential amino acids relative to the white variety, but, similar to the white maize, they were deficient in histidine and lysine. This study indicates that, in terms of the nutrients assessed, provitamin A-biofortified maize is generally superior to white maize, except for the minerals.