Diet	N.P.U. Value (%)
Normal endosperm (W22)	46.3
opaque-7 endosperm (W22)	56.28
opaque-2 endosperm	59.89

Analysis of variance showed that N.P.U. value for normal endosperm maize was significantly lower than the values obtained for opaque-2 and opaque-7, but there was no difference between the opaque mutants.

The advantage of N.P.U. as a measure of biological activity of a protein is that diets may be fed over a short test period, and the N.P.U. value is not influenced by differences in feed intake. Diets are fed at the same level of protein, and differences in N.P.U. reflect differences in protein quality and not differences in protein quantity.

These data, therefore, suggest that opaque-7 is superior to normal maize and equal to opaque-2 maize in nutritive value.

This preliminary experiment does not establish the biological value of opaque-7 endosperm proteins, but it does suggest a thorough analysis of the feeding value of opaque-7 maize to be worthwhile.

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1. Effect of position within the tassel on crossover frequency in microsporocytes.

Using bridge and fragment frequencies at anaphase I in plants heterozygous for inversion 5083 as an assay of crossover frequency, the following results were obtained: In five out of five tests (four within first flowers and one within second flowers) significant differences ($P \simeq .025$) were found between sporocytes from main spike and lateral branches. In four of the five tests (three for first flowers, one for second) crossover frequency estimates were greater for cells from the main spike than for laterals, but in the fifth case (from first flowers) crossover frequency estimates were

significantly greater for lateral branches. Data from sessile and pedicellate spikelets were compared within lateral branches and either within first flowers (12 tests) or within second flowers (7 tests). Significant heterogeneity was found, but no signed chi-tests (where $\chi = \pm\sqrt{\chi^2}$) were significant, i.e., crossover frequency estimates were sometimes greater in sessile spikelets and sometimes greater in pedicellate spikelets. Data from first and second flowers were compared either among pooled lateral branches (11 tests) or within single lateral branches (3 tests) and within sessile spikelets only (2 tests), or within pedicellate spikelets only (1 test) with these latter three tests made up of pooled branches, or with pedicellate and sessile spikelets pooled. Three of the fourteen individual tests (one within lateral branches and two among pooled branches) showed significant differences in crossover frequency estimates between first and second flowers with first flower greater than second flower, but within a branch, values for second flowers sometimes exceeded those for first flowers. Data from proximal and distal spikelets on lateral branches were compared either within single lateral branches (7 tests), or between lateral pools composed of some (or all of the same branches), or between pools with no branch in common (24 tests), and simultaneously either within first flower (25 tests) or within second flower (6 tests) and simultaneously either within pedicellate spikelets (13 tests) or within sessile spikelets (18 tests). Very significant heterogeneity was found. Eight of the tests, all involving sessile spikelets showed significant differences between crossover frequency estimates from proximal and distal spikelets. In (very significant) signed chi-tests, crossover frequency estimates from sessile spikelets were found to be greater in distal spikelets where first flowers were used than in proximal spikelets where first flowers were used (three tests each within a single branch). Conversely, crossover frequency estimates from sessile spikelets were found to be greater in proximal spikelets where second flowers were used than in distal spikelets where second flowers were used (two tests each within a single branch).

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