up in a knot. In other cases only the first two leaves are stuck together, and the plant grows normally. In some cases the leaves are all rolled tightly, forming a smooth tube; in others, the leaves are bunched up and crinkled.

The streaked and speckled class includes wide variations of green with small streaks or specks of lighter (including white and yellow) tissue or lighter green leaves with streaks and specks of darker green tissue. In some cases the leaves are narrow and stiff. In others they have normal shape and texture.

The striped (str) class includes all variations of white, yellow and pale green striping, ranging from an occasional stripe to those as extreme as striate (sr_2). Some are associated with morphological differences, and others are not.

The yellow stripe (ys) class is quite narrow, including only individuals which resemble the known ys mutants. The phenotype is that of normal green leaf veins and light yellow green tissues between the veins.

The glossy (gl) class includes all those which have a glossy phenotype at the 1-4 leaf stage. Some are associated with changes in leaf morphology, and others are not.

The "other" class includes a miscellaneous lot of interesting cases which were hard to classify in terms of known mutants.

M. G. Neuffer

4. Dominant yellow green.

A single yellow green seedling appeared among 56 normal seedlings in the F_1 following EMS treatment. The plant, which remained yellow green till maturity, was selfed. Sixty kernels planted from the selfed ear produced ten normal green, 33 bright yellow green and eight pale yellow seedlings. The yellow seedlings died as soon as the endosperm reserves were depleted. The yellow green seedlings grew more rapidly than the green and produced normal tassels and ears. (This rapid growth occurs only in the winter greenhouse; in the field, the yellow green plants are much smaller than normal.) Yellow green plants were crossed on normal sibs and other genetic testers. In all cases, seedling tests of the sib

and testcross ears gave a 1:1 segregation for yellow green and green seedlings.

Yellow green plants were crossed by each of the A-B translocations (MNL 45:144) and plantings made from the resulting seeds. All of the ears gave a 1:1 segregation for yellow green except the cross by TB-10c, which had 69 green, 29 yellow green and ten pale yellow seedlings. The pale yellow seedlings appeared to be hypoploids, thus indicating that the mutant has a yellow seedling phenotype when hemizygous.

These results indicate that the mutant is a dominant yellow green in heterozygotes and a lethal yellow in homozygotes and hemizygotes and that it is located on the short arm of chromosome 10. It is tentatively designated as $\underline{Yg_4}$.

M. G. Neuffer

5. Tan necrotic.

Two cases in which the mutant seedlings emerged with tightly rolled leaves were found in the EMS progenies. When the leaves were unrolled, they were found to be tan in color with uniformly spaced bands of dark brown tissue. A slight amount of chlorophyll appeared on the coleoptile and underlying leaf sheath at soil level. The seedlings grew very little and died in a few days. A good but not exclusive test by existing A-B translocations failed to uncover either mutant.

M. G. Neuffer

6. Pale green spotted.

Several cases characterized as pale green with fuzzy dark green spots have been found in EMS, NG and mutator system progenies. One of these (pgs, E-464), which was found in an EMS-treated culture and has been located on the long arm of chromosome 2, can be described as an example. The seedlings emerge as a moderate pale green with good vigor. At about the 2 leaf stage, small fuzzy spots of dark green (slightly larger than a pin head) appear and increase in number until there may be 40-100 on a leaf. Occasionally a spot may be much larger, in which case it will be elongated, conforming to the pattern of cell lineage of the