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High lysine and high yielding mutants in wheat (*Triticum aestivum*) L.

The dry seeds of the variety "Lu-26" were irradiated with 20 krad of gamma rays. In M₂ about 300 mutant plants were selected for short stature, rust resistance and other desirable traits. As a result of further selection, in M₆, eight superior lines were finally identified. The agronomic characteristics of these mutants, the parent variety (Lu-26) and a standard check variety (Pak-81) are shown in Table 1.

The selected mutants and commercially grown cultivars (Lu-26 and Pak-81) were studied for total protein content and amino acid pattern. The mutants WM-89-1, WM-6-17 and WM-81-2 showing high yield also contained comparatively high amounts of methionine and lysine. The lysine contents were 565, 410, and 370 mg/100g in the mutants WM-89-1, WM-6-17 and WM-81-2, respectively against a range value of 210-370 mg/100g in other mutants and 250-320 in the commercial cultivars. The mutant WM-81-2 was comparable to WM-56-1-5 in lysine content.

The results of these experiments show a possibility of developing varieties having high yield and high amounts of essential amino acids such as lysine and methionine.

Table: Agronomic characteristics of promising wheat mutants and varieties.

Mutant line/ Variety	Plant height (cm)	Grains/ spike	1000 grains wt. (g)	Harvest index	Yield/ha (kg)
WM-6-17	109.1	43.4	33.1	24.9	4150
WM-89-1	106.7	56.1	32.5	23.1	3561
WM-81-2	75.8	42.8	29.6	33.0	2816
WM-56-1-2	103.0	39.7	29.1	26.2	3500
WM-120-3	99.4	39.5	24.5	28.5	2966
WM-56-1-5	113.3	38.5	38.2	27.7	2996
WM-79-7	86.4	59.6	28.2	26.5	2598
WM-23-1-1	106.0	53.1	30.5	29.3	3056
Lu-26	95.6	38.2	30.9	27.6	2533
Pak-81	97.0	47.3	30.0	28.8	2983
Mean	99.2	45.8	30.7	27.6	3116
CV.	11.3	17.1	11.6	9.7	15.8

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