



The 25th anniversary is a good occasion to give recognition to all of them for the valuable contributions they made towards the development of the mutation breeding technology and its wide adaptation. That we can now list almost 1300 cultivars derived from induced mutations against 50 in 1964 is due to the consistent efforts of people who understood the principles of evolution and adopted them in breeding programmes. The FAO/IAEA Symposium in 1990 will assess the impact of induced mutations upon plant breeding.

RESEARCH NEWS

Early ripening, productive soybean mutant variety suitable for combine harvesting

Between 1979 and 1981 seeds of the early ripening Swedish variety "Fiskeby V" were treated with N-nitroso-N-methylurea, sodium azide or gamma rays. Induced mutants were selected which are characterized by longer stalk, higher insertion point of the lowest pods and improved grain yield as well as sufficiently early maturity [1]. The frequency of the long-stalked mutants can be seen from Table 1. Starting from 60 000 treated seeds, 6 mutant lines were developed, and in 1988 one variety named "Dorado" was released. The performance of mutant lines and the variety "Dorado" is shown in Table 2 and 3. Under optimal agrotechnical conditions in fields of 2-10 ha "Dorado" achieved grain yields between 1,5 and 2,3 t/ha during the last four years.

It is intended to grow this variety in the middle and southern districts of the German Democratic Republic, primarily for human consumption. A technology for growing this variety was recommended [2].

Table 1. Amount of mutagen treated seeds, selected long stalked mutants and their frequencies (summary of 3 experiments)

	Number	Frequency related to	
		M ₁ (seeds)	M ₂ (plant progenies)
M ₁ Generation 1979-81 treated seeds	60 000		
M ₂ Generation 1980-82 plant progenies analyzed	8 895		
long stalked plants selected	317	5.3x10 ⁻³	3.6x10 ⁻²
M ₃ Generation 1981-83 confirmed mutants (A-lines)	68	1.1x10 ⁻³	7.6x10 ⁻³
B-lines 1982-84	34	5.7x10 ⁻⁴	3.8x10 ⁻³
C-lines 1983-85	16	2.7x10 ⁻⁴	1.7x10 ⁻³
Lines in official variety trial 1984-86	6	0.1x10 ⁻⁴	6.7x10 ⁻⁴
Varieties 1988	1	1.7x10 ⁻⁵	1.1x10 ⁻⁴

Table 2. Performance of the best long stalked mutants (official trials, mean 1986 and 1987, 4 locations)

	plant height (cm)	distance of the lowest pod from ground (cm)	vegetation ripening period (d)	ripening date	grain yield (kg/ha)	rel. yield
"Fiskeby V"	46	7.0	133	9.9.	1205	100
M 55-82 ("Dorado")	62 ⁺	13.4 ⁺	139 ⁺	15.9.	1320	110
M 46-82	67 ⁺	12.8 ⁺	143 ⁺	20.9.	1438	119 ⁺
M 72-82	64 ⁺	11.3 ⁺	143 ⁺	20.9.	1332	110
M 112-83	71 ⁺	13.3 ⁺	144 ⁺	22.9.	1560	129 ⁺

+ Difference to the initial variety significant (P = 5%)

Table 3. Performance of the mutant variety "Dorado" (official trial, mean 1983-1987, 4 locations)

	1983	1984	1985	1986	1987	mean 1983-87	rel.
<u>Plant height (cm)</u>							
"Fiskeby V"	47	49	55	40	52	48.6	100
"Dorado"	56	67	62	48	75	61.6	127 ⁺
<u>Distance of the lowest pod from the ground (cm)</u>							
"Fiskeby V"	-	8	8	7	7	7.5	100
"Dorado"	-	10	13	13	14	12.5	167 ⁺
<u>Grain yield (kg/ha)</u>							
"Fiskeby V"	1703	1118	1440	890	1520	1334	100
"Dorado"	1927	1295	1605	1082	1558	1493	125 ⁺

+ Difference to the initial variety significant (P = 5%)

REFERENCES

- [1] KRAUSSE, G.W., Soybean mutation breeding in the German Democratic Republic. Mutation Breeding Newsletter 26 (1985) 5-7.
- [2] MAROLD, R., STELZNER, CHR., KRAUSSE, G.W., ALBRECHT, R., Anbauverfahren "Sojabohnen zur Körnerernutzung" - Ergebnisse und Ansatzpunkte zur Verbesserung. In: 4. Saatgutsymposium, Kongress und Tagesberichte der Martin-Luther Universität Halle-Wittenberg (1988) 448-455.

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