RESEARCH NOTE

Release of New Soybean Varieties

V. ARULNANDHY
Regional Agricultural Research Centre, Maha Illuppallama

Soybean (*Glycine max* L. Merrill) is an important grain legume in Sri Lanka due to the fact that it provides both high quality protein and oil and the aminoacid pattern approaches the optimum for human consumption, recommended by the Food and Agriculture Organisation of the United Nations. There has been an increasing demand to expand soybean cultivation in our country. It is however, limited by certain production constraints under our conditions. The loss of viability of seed in storage due to seed deterioration is a major constraint in soybean production in Sri Lanka.

In view of this, a breeding programme was initiated at the Regional Agricultural Research Centre, Maha Illuppallama to develop soybean varieties for improved yield and seed quality. The local variety "Nuwara Eliya local" was hybridized separately with "Bossier" and "PB—1" obtained from USA and India, respectively and two promising strains, namely PM—13 and PM—25, were developed for high yield and seed quality which encompasses resistance to seed deterioration under storage. The newly developed elite varieties were released as national varieties by the Department of Agriculture in the year 1989.

Soybean variety PM—13

The variety PM—13 produced yellow seeds with yellow cotyledons. The yield level is comparable to that of the standard cultivar PB—1 (Table 1). Seeds are of medium size (13g/100 seeds). The protein content is 49% which is 8.9% higher than that of PB—1 (Table 2). This variety maintains high level of seed viability (above 80% germination) for at least 3 months under ambient conditions and is less susceptible to seed deterioration, compared to PB—1 (Table 3). This is a short—aged variety of 90 days duration. The only undesirable character is that it is moderately susceptible to bacterial pustule disease like the standard cultivar PB—1 under very wet conditions in maha season. Seed requirement for this variety is estimated to be 60kg/ha.

Soybean variety PM—25

Like the soybean variety PM—13, seeds of PM—25 are yellow in colour with yellow cotyledons. The yield level is similar to that of the standard cultivar PB—1 (Table 1). Seeds are smaller than that of PM—13 (9–10g/100 seeds) and contain 48.8% protein which is 8.5% higher than that of PB—1 (Table 2). Seed viability remains high at about 90% for 6 months under ambient conditions, indicating a high degree of resistance to seed deterioration under storage (Table 3). Since seeds are small, only 30—40kg seed are required to plant one hectare. This variety matures in about 95—100 days. It is moderately susceptible to bacterial pustule disease like PM—13, under very wet conditions in maha season.

ACKNOWLEDGEMENTS

The assistance provided by Mrs. A. Pathirana, Research Officer and Mr. B. M. Karunaratna, Research Assistant in this programme is highly appreciated. The author is also grateful to the Deputy Directors of the Regional Agricultural Research Centres and their staff for the co-operation given for the field evaluation of these soybean varieties. Sincere thanks are due to the Soybean Project Co-ordinators of the Department of Agriculture.

Table 1. Yield performance of the new and standard soybean varieties during yala and maha seasons of 1983—1986

		*Mean seed yield (kg/ha)**			
		Varieties			
Year	*Season*	*PM—13*	*PM—25*	*PB—1*	*Mean*
1983	yala	1995	-	1813	1904
1984	yala	2668	2418	1682	2256
1985	yala	1667	1673	1845	1723
1986	yala	2160	2720	2747	2542
Mean		2123	2270	2022	2138
1983/84	maha	1370	1263	1244	1292
1984/85	maha	2296	2320	2248	2288
1985/86	maha	1512	1556	1680	1583
Mean		1726	1713	1724	1721

*Locations tested: Angunukolapellessa, Gannoruwa, Girandurukotte, Makandura and Maha Illuppallama

Table 2. Protein and oil content of new and standard soybean varieties

Variety	*Protein content (%)*	*Oil content (%)*
PM—13	49·0	17.8
PM—25	48.8	18.2
PB—1 (Standard)	40.3	21.0

Table 3. Seed viability of new and standard soybean varieties under ambient conditions

	Germination (%)			
	Months in storage			
Variety	*0*	*3*	*6*	*9*
PM—13	88.7	81.1	44.9	0.0
PM—25	100.0	97.0	90.3	12.3
PB—1 (Standard)	88.3	61.2	7.4	0.0