ACCELERATED AGING TESTS AND AUTOMATED COMPUTER IMAGING SYSTEM (SVIS®) TO ASSESS THE PERFORMANCE OF SOYBEAN SEEDS DURING STORAGE

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OBJECTIVE

Verify the accuracy of accelerated aging tests (traditional and saturated salt - SSAA) and an automated system for seedling evaluation (SVIS®) to assess the physiological potential and estimate the storability of soybean seeds.

MATERIAL AND METHODS

Seeds: two cultivars, M-Soy 7908RR and BRS 184, each represented by six seed lots with germination 81% - 97%

Storage: controlled environment (A_1) at 20°C + 75% R.H. and normal laboratory conditions (A_2) for six months.

Three evaluation times (two - month intervals) : germination; traditional accelerated aging (41°C/48h); saturated salt accelerated aging (41°C/72h); tetrazolium (viability and vigor); seedling emergence (percentage and speed)

SVIS®: germination for 3 days; seedling images captured by scanner; determinations of vigor index, uniformity of growth, and seedling length.

MAIN RESULTS, for 'BRS 184' seeds (comparable to those obtained for 'M-Soy ' seed lots)

- Temperature varied from 14.2°C to 27.9°C and R.H. from 58% to 78% at A_2 environment, corresponding to variations from 10,0 to 13,6 in %SMC

- Vigor tests detected the lower performance of seed lot 3 before and after six months storage period in both environments

Seed lots	G (%)	Speed Em. (index)	Em. (%)	TZ-viab. (%)	TZ-vig (%)	TAA (%)	SSAA (%)	SVIS		
								Vigor	Unif.	S.L. (cm)
1	91	10.7	87	93	88	84	94	766	872	8.8
2	94	10.9	91	96	90	85	88	786	859	9.0
3	81	9.3	89	83	80	74	82	686	858	7.5
4	90	10.6	86	90	86	80	93	807	848	9.3
5	90	10.6	92	95	91	78	92	804	874	9.5
6	84	10.3	90	95	86	84	93	738	843	8.2

Table 1. Germination and vigor results before storage

Seed lots	G (%)	Speed Em. (index)	Em. (%)	TZ-viab. (%)	TZ-vig (%)	TAA (%)	SSAA (%)	SVIS		
								Vigor	Unif.	S.L. (cm)
1	80	3.0	45	64	44	9	62	483	646	2.8
2	89	3.7	53	67	51	23	65	585	795	4.5
3	68	1.9	30	62	40	7	47	457	793	2.5
4	89	4.7	59	69	48	15	76	781	844	6.1
5	82	3.6	48	75	57	26	80	678	835	5.0
6	85	3.7	48	74	47	19	78	646	820	4.7

Table 2. Germination and vigor results after 6 months storage in A_1

CONCLUSION

The storability of soybean seeds can be consistently evaluated by associating accelerated aging and software SVIS® results