



Short Note

Size Grading in Hedge Lucerne (*Desmanthus virgatus*) cv. TNDV 1 Seeds

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Grading, the separation of good seed from poor quality seed is one of the basic post harvest operation of any seed crop (Agrawal, 1996). Graded seeds not only express higher initial quality but also higher productivity and prolonged storability. This selection of seed for better utility is a must in hedge Lucerne which is an important fodder crop of India. Hence, studies were made with Lucerne cv. TNDV 1 by implying physical techniques of seed management *i.e.* size for improving its seed quality.

Fresh seeds of hedge Lucerne cv. TNDV 1 were obtained from the Department of Forage Crops, Tamil Nadu Agricultural University, Coimbatore, as a bulk. Then, seeds were size graded using square holed British Standard Sieves (BSS) of sizes 112 (2.08 mm), 14 (1.78 mm) and 16 (1.56 mm). The seeds obtained in each grade were weighed and compared to the original weight and the recovery percentage was worked out. For 1000 seeds weight, 1000 seeds in eight replicates counted in each grade and the weight was obtained as per ISTA (1999). The seeds of each grade were placed for germination test as per ISTA (1999) in roll towel media. Ten normal seedlings were selected at random in each grade to measure the root and shoot length of seedlings. The vigour index was computed as per Abdul- Baki and Anderson (1967). The data gathered were analyzed as per Panse and Sukhatme (1957) for F test of significance for undertaking the level of significance between the grades.

Highly significant results were obtained for size grading. Among the different size grades, the recovery of seeds was the highest in BSS 14 sieve. The recovery of seeds was low in 16 (largest seed). From BSS 12 to BSS 16 the recovery of seeds were in decreasing order with increase in sieve number (size of hole in mm is small). The recovery of seeds passed through BSS 16 (P) was higher than those retained in BSS 16 indicating the availability of vary small seeds in the hedge Lucerne seed lot, which need to be eliminated to improve the quality of seeds; otherwise this may increase the invasion of pathogen and insects and reduce the quality of seed (Copeland, 1976).

The 1000 seed weight was in positive association with seed size where the weight was in decreasing order with increase in sieve number or deduction in sieve in mm (Table.1). The seed quality characters in terms of germination root and shoot length, drymatter production, vigour index, field emergence and protein content was also in decreasing order either with decrease in size of seed or increase in sieve number exhibiting positive association between seed size and seed quality. Ashby (1936) in this initial capital theory expressed that this positive association was due to the higher deposition of initial capital at developmental stages. The positive association exerted between the 1000 seed weight and seed size in the present study was in line with the acceptance of the initial capital, providing positive association between seed size, seed weight and seed quality.

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Table 1. Influence of size grading on seed and seedling quality characteristics of lucerne cv. TNDV 1

Sieve size (BSS)	Seed recovery (%)	1000 seed weight (g)	Germination (%)	Root length (cm)	Shoot length (cm)	Drymatter production (mg seedlings ⁻¹⁰)	Vigour index	Field emergence (%)	Protein content (%)
12 X 12 R	34.5(35.96)	4.45	98(69.73)	2.4	3.6	23.5	588	80(60.23)	21.8
14 X 14 R	54.3(47.48)	3.90	92(64.93)	2.1	3.2	20.0	488	78(62.24)	20.4
16 X 16 R	10.5(18.87)	3.08	75(60.01)	1.6	2.8	15.3	333	66(51.28)	19.9
16 X 16 P	0.9(5.42)	2.00	51(45.58)	0.9	2.5	9.8	176	42(38.46)	17.5
Ungraded	- (0.64)	3.22	77(61.36)	1.9	2.8	16.8	367	64(50.02)	20.2
CD(P=0.05)	0.679	0.231	2.279	0.191	0.285	1.520	24.075	1.129	0.231

(Figures in parenthesis indicate arcsine transformed values)

Similar positive association between the physical characters (weight and size) and seed quality was reported by Srimathi and Vanangamudi (1993) in cowpea and Srimathi *et al.* (1990) in yam beans. On comparing the recovery (54.3 %) and seed quality characters *viz.*, germination (92 %) and vigour index (488), it was recommended that hedge Lucerne seeds can be size graded by BSS 14 X 14 (1.79mm) for selecting better quality seeds.

Reference

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