

## SEED QUALITY STATUS OF CLUSTERBEAN SEED PRODUCED BY FARMERS' AS WELL AS PUBLIC AND PRIVATE SECTORS IN HARYANA

AXAY KUMAR, S. S. JAKHAR\*, O. S. DAHIYA AND R. C. PUNIA

Department of Seed Science & Technology,  
CCS, Haryana Agricultural University  
Hisar-125004

\*(E-mail: [satbirsinghjakhar@yahoo.co.in](mailto:satbirsinghjakhar@yahoo.co.in))

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### SUMMARY

Fifty seed samples (24 farmers' saved seed, 6 public and 20 private seed sectors) of two guar varieties viz., HG-365 and HG-563 were collected from guar growing areas of the state and analyzed for quality tests. The germination (%), seed moisture content (%) and physical purity (%) of public sector samples ranged from 84 to 92, 8.9 to 9.0 and 98 to 100 per cent, respectively while in the samples collected from private sector ranged from 82 to 85, 9.1 to 9.2 and 98 to 99 per cent, respectively. In farmers' saved seed, these parameters ranged from 72 to 85, 9.1 to 10 and 85 to 95 per cent, respectively. None of the samples from public, private and farmers saved seed was found infested with the diseases and insect pests. The results revealed that the quality of the samples produced by public and private seed organizations was good & healthy and met Indian Minimum Seed Certification Standards (IMSCS) while the quality in respect of farmers saved seed was marginally lower than the IMSCS in terms of germination, physical purity and moisture content.

**Key words :** Clusterbean, seed quality, purity, germination, vigour and health

Clusterbean (*Cyamopsis tetragonoloba* (L.) Taub) is an important pulse crop of irrigated as well as rainfed areas of the world having a high commercial value. Good quality seed is the basic and essential input for sustainable agriculture and other inputs are contingent upon quality of seed for being optimally effective. Adequate availability of seed is bringing about radical change in the agriculture scenario of the country. It is estimated that the direct contribution of quality seed alone to the total agricultural production is about 15-20 per cent as compared to farmers' saved seed. In order to meet the challenges regarding the availability of quality seed to the farmers at an affordable price, right time and sufficient quantity, Indian scientists, policy planners, farmers, public and private seed sectors will have to join hands to constitute a strong and sustainable seed sector. Keeping in view these problems, a survey was conducted throughout the state regarding the quality of farmers' own saved seed, public and private sectors

and HG-563 were collected from farmers (24) as well as public (6) & private (20) seed sector from the guar growing areas of the state. The seed samples were analysed for the following seed quality parameters as per ISTA rule (2005). Observations on seed moisture content (%), physical purity (%), standard germination (%), seedling length (cm), dry matter/ seedling weight (mg), Electrical conductivity ( $\mu\text{S}/\text{cm}/\text{seed}$ ), vigour index-I and seed health were recorded.

Seed moisture content (%) of the samples was determined by hot air oven method. One hundred seeds were placed in between the paper (B.P.) method at 25°C temperature in three replications. After 14 days, the seedlings were evaluated and the normal seedlings including hard seeds were counted and expressed in percent. Average of 10 normal seedlings length (cm) and dry matter (mg) of these seedlings was recorded. The vigour index was calculated as per method given by Abdul-Baki and Anderson (1973). Electrical conductivity of the seed leachates was measured using a direct reading conductivity meter. Fifty seeds were replicated thrice from each seed-lot and soaked in 50 ml deionised water. Then these were kept in the incubator at 25°C for 24h and electrical conductivity was expressed in  $\mu\text{S}/\text{cm}/\text{seed}$ . Seed

### MATERIALS AND METHODS

Fifty samples of two clusterbean varieties viz., HG-365

health of the samples was examined with dry seed examination and blotter method.

## RESULTS AND DISCUSSION

The results revealed that the quality of farmers' saved seed was found to be of low grade physical purity (85-95%) as they did not meet the minimum requirement of 98 per cent pure seed fraction. The moisture content of the samples ranged from 9.1-10 per cent which was also higher than the prescribed limit (9.0%). Similarly the germination (%) in farmers' saved seed ranged from 72-85 % (Table-1). Lack of knowledge of prescribed methods of seed production, poor storage and rough handling may be the cause of poor seed quality as envisaged by Katiyar and Vaish (1998). The seed quality parameters in samples collected from public and private seed sectors were recorded within the prescribed limit. The germination (%), physical purity(%) and moisture content (%) in the samples collected from private seed companies was recorded 82-85, 98-99 and 9.0-9.1 per cent respectively (Table 1). Similarly the germination (%), physical purity (%) and moisture content (%) in the samples collected from public seed sector was recorded 84-92, 98-100 and 8.9-9.0 per cent, respectively (Table 1). Not even a single sample from public, private and farmers saved seed was found

infested with the disease and insect pests. The results showed that the farmers' saved seeds are indeed inferior to the certified seeds of the same crop and the farmers lack awareness of using certified seeds. This is in confirmation with the observations of Huda (1990) who reported that 61.2 per cent of wheat and 49.3 per cent of rice seed samples of farmers 'saved seed showed germination percentage below the standards. Prasad *et al.* (1994) reported that 67 per cent of paddy, 19 per cent of groundnut and 12 per cent of sunflower seed samples were substandard. Narayanaswamy *et al.* (1996) also observed that 8 and 46 per cent of groundnut samples were below the prescribed limits of physical purity and germination respectively. Vig *et al.* (2001) reported that out of 15 farmers' saved seed samples, those found below the IMSCS with respect to physical purity, standard germination and seed health were four, two and two samples, respectively. Similarly, Reddy *et al.* (2000) found that 11 out of 22 rice samples (50%) collected from farmers were below certification standards. Therefore, it was concluded that farmers' saved seed are generally substandard, so there is an urgent need to train the farmers regarding the importance/advantages of certified seeds through participatory seed production programmes, field days, radio and TV talk and trainings at district headquarters which will also enhance the seed replacement rate.

TABLE 1  
Seed quality analysis of samples of public, private and farmers' seed growers of Haryana

Source and no. of samples	Seed moisture content (%)		Physical purity (%)		Standard germination		Seedling health (cm)		Dry Matter/seedling (mg)		Electrical conductivity (µs/cm/g)		Vigour index-I	
	Range	Av.	Range	Av.	Range	Av.	Range	Av.	Range	Av.	Range	Av.	Range	Av.
Public sector (6)	08.9-09.0	9.0	98-100	99	84-92	88	26.2-28.8	27.5	0.131-0.139	0.135	0.448-0.554	0.501	2200.8-2649.6	2425.2
Private sectors (20)	09.0-09.1	9.0	98-99	99	82-85	84	25.1-27.5	26.3	0.119-0.128	0.124	0.551-0.611	0.581	2058.2-2337.5	2197.9
Farmers' saved seed (24)	09.1-10.0	9.6	85-95	90	72-85	80	23.0-25.5	24.3	0.116-0.122	0.119	0.599-0.833	0.716	1656.0-2167.5	1911.8
IMSCS limits	09.0		98		75									

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