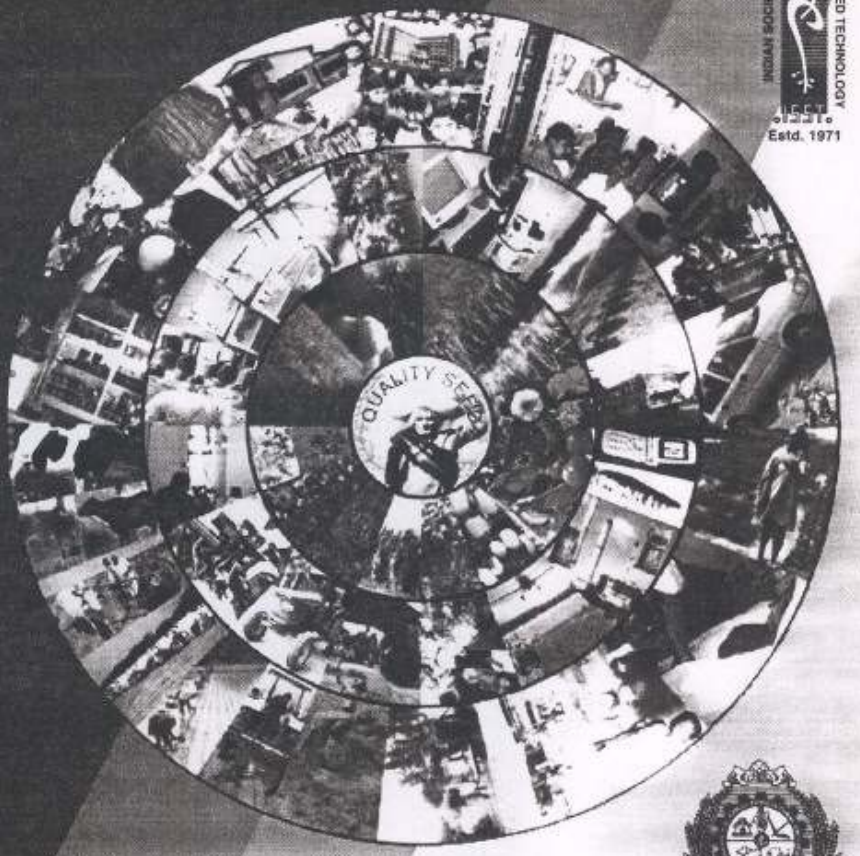
ABSTRACTS

Seminar on

PROSPERITY THROUGH QUALITY SEED

सुबीजम् सुक्षेत्रे जायते सम्पद्यते



Estd. 1971

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(S_2), 0.90 mm (S_3) and 0.80 mm (S_4). The observations were recorded on seed recovery, standard germination, seedling length Seedling vigour index, field emergence and yield. Result reveals that variety and sieve size had significant effect with respect to all characters studied. However, the interaction of variety and sieve size had affected to seed recovery, germination and Seedling vigour index only. The variety T9 showed greater seed recovery (97.15%) and yield (14.26 q/ha) than Bhawani. In Bhawani 92.69% seed recovery and 12.40 qha^{-1} yield was recorded. The sieve size 1.20 mm had produced minimum seed recovery (84.11%) and maximum germination (97.06%), seedling length (14.13 qha^{-1}) however lowest sieve size (0.80 mm) recorded maximum seed recovery and minimum seed quality and yield. Considering the seed recovery percentage, seed quality and yield, the sieve aperture size of 0.90 mm has been found appropriate among all for grading of T9 and Bhawani which produced 97.80% seed recovery, 93.83% germination 14.03 cm seedling length, 1.48 Seedling vigour index, 87.71% field emergence and 13.77 qha^{-1} yield.

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Seed Health Status of Certified and Farmer Seed Samples of Groundnut Varieties in Andhra Pradesh

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Groundnut is one of the important oilseed crops of in India, and is grown in an area of 83.69 lakh hectares with a production of 8.87 lakh tonnes. However, the average yields are low (around 1000 kg/ha) as compared to other major groundnut growing countries. Major constraint in increasing groundnut productivity is its susceptibility to a large number of diseases which play an important role in limiting the groundnut seed production. In Andhra Pradesh 85% of seed being used for sowing is farmer's own saved seed or the seed that is bartered or exchanged with other farmers. In order to assess the seed health status of groundnut seed used for sowing in Andhra Pradesh, 40 samples of farmer saved seed and 11 certified seed samples comprising ruling groundnut varieties namely, TMV-2, JL-24, TAG-24, K-134 and Polachi were collected from the groundnut growing districts of Nalgonda, Anathapur, Chittor and Guntur in Andhra Pradesh. The samples were analyzed for seed quality parameters in the laboratory. The field emergence and disease incidence under field conditions were also assessed for two consecutive years during *Kharif* season of 2003 and 2004 at National Seed Project, Rajendranagar, Hyderabad in a randomized block design with three replications. The initial germination in farmers samples ranged from 45-96 % where as certified seed samples recorded germination of 50-99 %. Out of 40 farmer's seed samples, three samples of Guntur (local) and Ananthapur (JL-24) were inferior in seed quality and they recorded germination far below the certification standard (<70 %). Out of 11 certified seed samples, one sample recorded germination below minimum seed certification standard. Seedling vigour index in both samples ranged between 1100 and 2656, it was significantly higher in certified lots (2656) as compared to farmer's samples (2240). The total fungal colonies in farmer's samples were significantly higher (22-40 %) than in certified samples (10-22 %) indicating better health status of certified samples. The predominant fungal flora associated with both the samples was *Aspergillus flavus, Aspergillus niger* and *Rhizopus* sps. Field emergence in farmer's samples ranged between 73-99 % and 93-100 % in farmer seed and certified samples respectively. Three samples recorded germination below certification standard (< 70 %) in laboratory where as all samples recorded higher germination under filed conditions. The major diseases observed in two year screening were *cercospora* leaf spot, rust, *Alternaria* leaf spot, stem rot, PBNV & PSNV in both samples. The incidence rate was significantly higher in farmers samples (range: 5-9 on 1-10 scale) than in certified samples (5 on 1-10 scale). The continuous usage of farmers own seed continuously will badly affect seed quality and also leads to higher disease incidence, rapid deterioration of seed vigour and viability, leading to imminent decline in production and productivity of groundnut seed in Andhra Pradesh. Hence there is a pertinent need to educate farmers to improve the quality of their own seed, in addition to increasing the usage of certified seed.

seed is, therefore, defined as the sum total of those properties of seed or seed lot which determine the level of activity and performance of the seed or seed lot during germination and seedling emergence (ISTA, 1977). The seed vigour studies were conducted on sixteen seed lots of three cotton varieties namely HD 123 (4 seed lots), H 1098 (6 seed lots) and H1117 (6 seed lots) having 30-85 % germination during the year 2004-05. Different seed vigour tests viz. field emergence, first count, standard germination, electrical conductivity, seedling length, dry weight, accelerated ageing (for 48, 72, 96, 144, and 196 h) were applied. The observations were recorded on bimonthly intervals till germination fell below 30 % to study seed storability. The results were significantly different from each other. The standard germination was recorded higher in HD 123 Desi cotton variety seed lot (84.75 %) followed by H1117 American cotton variety (80.25 %). The percent germination was decreased below minimum seed certification standard (65 %) at 144 h and 196 h accelerated ageing period in every seed lot. All the laboratory parameters except accelerated ageing test for 144 h duration have positive significant association with field emergence. Accelerated ageing test for 48 to 192 h recorded a high correlation with germination upto 8 months of storage. The highest positive significant correlation coefficient (0.964**) at 0.01 and 0.05 % level was recorded between standard germination and accelerated ageing test (48 h). The cotton seed lots were highly influenced by accelerated ageing period.

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Effect of Seed Colouring on Seed Quality in Cereals, Pulses and Oilseeds

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The seed processors colour seeds because it is required by law to avoid accidental use of treated seeds as food or feed or with a specific colour as a trademark. But, to use such dyes, which in fact are chemical formulations, it is necessary to prove that they are non-toxic with respect to seed germination, vigour potential and viability; the information about which is not available to the extent it can be used in seed industry. But, till date there are very few and isolated studies in India to establish colour standards to pave the way for coloring the seeds by incorporating the provisions in the seed quality control and seed trade in India. In this paper we discuss developing colour standards for these major pulses and oil seeds and their resultant implications for Indian seed industry. The investigations, on seed colouring were conducted with redgram (cv. LRG-30), blackgram (cv. LBG-7), bengalgram (cv. Annegeri), Soybean (cv. JS 335), Castor (cv. PCS-4) and Sunflower (cv. Morden and BSH-1) encompassing 25 dyes namely Rhodomine-B, Cotton blue, Fuchsine, Neutral Red, Gentian Violet. Methylene blue. Crystal violet, Congored, Fast green, Bromocresol Purple, Phenol red, Nigrosine, Erichro black T, Ammonium purpureate (mureoxide), Bromocresol green, Malachite green, Methyl red, Methyl orange, Tital yellow, Indigo carmine along with commercially available natural dyes in the market namely Kumkum, Yellow, Pink, Blue and Brick red to develop and recommend color standards after assessing their effect on seed quality. The dyes namely Rhodamine-B, Fast green and Fuchsine in order of preference both for paddy and maize; Rhodamine-B, Congo red, Phenol red, Fast green and Gentian violet for sorghum; Rhodamine-B and Fuchsine for bajra; Rhodamine-B, Fuchsine and Titan yellow for redgram; Rhodamine-B, Fuchsine and Phenol red for blackgram; Rhodamine-B, Crystal violet, Titan yellow for bengalgram; Rhodamine-B, Fast green and Malachite green for soybean; Rhodamine-B and Erichro black-T for castor, and Rhodamine-B and Cotton blue for sunflower are the best dyes for seed colouring at 0.75% concentration.