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Dalvi DG
Vasantrao Naik Marathwada Krishi Vidyapeeth Seed technology research unit, Parbhani, Maharashtra, India

Correspondence
Dalvi DG
Vasantrao Naik Marathwada Krishi Vidyapeeth
Seed technology research unit, Parbhani, Maharashtra, India

Effect of season on seed production feasibility in soybean

Dalvi DG

Abstract
A field experiment consisting of five soybean genotypes (JS-335, MAUS-81, MAUS-71, MAUS-47 and MAUS-61) with four replication was conducted in three season viz. *kharif, Rabi* and *summer* at Seed Technology Research Unit, VNMKV, Parbhani to find out the seed production feasibility in different season. The result revealed that the seed yield in soybean varieties was significantly higher in *kharif* season followed by summer as compared to *Rabi* season. The *kharif* was found to be best season for seed production. However, if soybean crop failed its seed viability due to late rains and field weathering in *kharif* season at the time of maturity. Seed production may be taken in summer season looking to comparable yield. The variety MAUS-71 followed by MAUS-81, JS-335were recorded significantly highest seed yield over MAUS-47 in all the season. The variety MAUS-71 and MAUS-81 was found to be most ideal and stable over the year-round cultivation and best suited for seed production in all season.

Keywords: Soybean, season, seed production feasibility and yield.

Introduction
Soybean has become a miracle crop of the twentieth century and is often designated as a 'Golden Bean' It is a triple beneficiary crop, unique food, valuable feed and an industrial raw material with considerable potentiate the average productivity of soybean m India and Maharashtra 11.47 and 11.02 qt/ha, respectively. However, the average productivity of soybean in Brazil, USA and Argentina were 27.04, 26.63 and 25.91 qt/ha, respectively (source www.sopa.com) Thus there is a great potential to this crop in India. In general environment plays an important role in production of quality seed. Seed quality of soybean is affected by field weathering and environmental condition during pre and post-harvest period. Soybean seed reaches its maximum potential for seed vigour and viability at physiological maturity. The viability of soybean seed is very short lived as compared to other field crop and is often reduced prior to plating time. This loss of viability is much more acute under tropical conditions like India. These environmental conditions make very' difficult to produce the quality soybean seed and maintain its viability during storage. Such deteriorated seed is one of the basic reasons for low productivity in soybean. Hence the present investigation was carried out to study the effect of season on seed production feasibility in soybean.

Material and Methods
The present investigation was earned out at Seed Technology Research Unit, VNMKV, Parbhani. The experiment was laid out in RBD design with four replication having plot size 5.40 x 5.0 meter with spacing of 45 x 5 cm. Five soybean genotypes viz. JS-335, MAUS-81, MAUS-71, MAUS-47 and MAUS-61 were sown in *kharif, Rabi and summer* seasons. The fertilizer dose of 30 kg N and 60 kg P/ha was applied. Hand weeding, irrigation, plant protection measure were carried out from time to time as and when required to rise good crop by adopting standard crop production techniques. The observations on days to 50% flowering, number of branches/plant, number of nodes/plant, plant height (cm), days to maturity, number of pods/plant, number of seed/plant, seed weight/plant, plant density at harvest, 100 seed weight (g) and seed yield qtl/ha were recorded in 10 randomly selected plant, in each plot.

Results and Discussion
In the present investigation, soybean varieties exhibited significant differences amongst seed yield in all the three seasons. (Table 1) In general the yield qt/ha in soybean varieties was significantly higher in *kharif* followed by summer as compared to *Rabi* season. Taware *et al.* (1994) [10] also found considerable seasonal variations in grain yield of soybean. *Kharif* season was indicated as the most favorable season for soybean seed production. Similarly, Sen and favourable

Mukhaijee (1986) [7] studied the potentialities of soybeans and found that *kharif anti* late *kharif are* more season for soybean cultivation. Shelar (2002) [9] also studied the performance of soybean seed production in different seasons i.e. *kharif, Rabi and summer* and found that the *kharif is* the best season for seed production of soybean followed by summer irrespective of varieties. Borade (1998) [1] studied the seasonal performance of eight soybean genotypes in. respect of yield in *kharif Rabi* and *summer* season and found that in general in *kharif* grain yield are more as compared to *Rabi* and *summer*. The variety MAUS-71 followed by MAUS-81, JS-335 and MAUS- 61 recorded significantly highest seed yield over MAUS-47 in all the seasons. Anonymous (2004) strongly supported that the variety MAUS-71 followed by MAUS-81, JS-335 and MAUS-61 recorded highest seed yield during Breeder seed production Programmne (2003-04).

The differences in number of pods/plants, number of seed/plants, seed weight/plant and 100 seed wcight (g) were found significant among the varieties in *kharif, Rabi* and *summer* season. The highest number of pods/plants, number of seed/plants, seed weight/plant and 100 seed weight (g) were found in *kharif* followed by summer season, whereas, it was lowest in *Rabi* season. The variety MAUS-71 followed by MAUS-81 was recorded significantly highest number of pods/plants, number of seed/plant and seed weight/plant, than other varieties. Whereas, 100 seed weight (g) was significantly highest in variety MAUS-61 than all other varieties. In soybean, varietal and seasonal differences m respect of different characters were also reported by Hudge *et al.* (1982) [3], Raut *et al.* (1992), Shahidullah *et al* (1979) [8], Shelar (2002) [9], Taware *et al.* (1994) [10], Borade (1998) [1] and Anderson and Vasilas (1985).

The plant density at harvest was significantly differentiates among the varieties in *kharif rabi* and *summer* season. The highest plant density at harvest was recorded in *kharif* as compared to *Rabi and summer* season. The highest plant density at harvest was recorded in MAUS-71 followed by MAUS-81 than all other varieties. Similar results were also reported by Hudge *et al.* (1982) [3], Paschal and Ellis (1978) [5] and Neaumaier *et al.* (1979).

The differences in days to 50% flowering and maturity were significant among the varieties in all the three seasons. The minimum days to 50% flowering and maturity were required in *kharif* followed by *summer* than *Rabi* season. Whereas, the maximum days to 50% flowering and maturity were required in *Rabi* season. The variety MAUS-47 taken significantly minimum days to 50% flowering and maturity in all the three seasons than other varieties. The maximum days io 50% flowering was taken by variety MAUS-61. Whereas, the maximum days to maturity was taken by variety JS-335 in Kharif and MAUS-61 in *Rabi and summer* season. Taware *et al.* (1994) [10], Sarmah *et al* (1984) and Shelar (2002) [9] reported similar results.

There were significant differences in plant height and number of nodes/plant of soybean varieties in all the seasons' *viz. kharif, Rabi* and *summer*. The plant height and number of nodes/plants were found to be highest in *kharif* followed by *summer* than *Rabi* season. The variety MAUS-61 was found to be highest in plant height and number of nodes/plant than other varieties. Whereas, the plant height and number of nodes/plant where found to be lowest in variety MAUS-47. In soybean, the differences in plant height and number of nodes/plants were also reported by Hudge *et al.* (1982), Rant *et al.* (1992), Shielar (2002) and Borade (1998) [1]. The average number of pods/plant of the five genotypes over the three seasons were 46.84, whereas, the average seed yield was 16.31 qtl/ha.

Conclusion

The *kharif* was found to be best season for seed production. However, if soybean crop failed its seed viability due to late rains and field weathering in *kharif* season at the time of maturity. Seed production may be taken in summer season looking to comparable yield. The variety MAUS-71 followed by MAUS-81, JS-335were recorded significantly highest seed yield over MAUS-47 in all the season. The variety MAUS-71 and MAUS-81 was found to be most ideal and stable over the year-round cultivation and best suited for seed production in all season.

References

1. Borade BD. Source and sink relationship in soybean [*Glycine max* (L.) Merril] as influenced by season. Ph D. Thesis, Maratliwada Agril. University, Parbhani, 1998.
2. Damodaran T, DM Hegde. Oil seed situation. A statistical compendium. Directorate of Oilseeds Research, Raiendranagar, Hydrabad - 5000301, India, 2002, 85-107.
3. Hudge VS, MR Salunke, ST Borikar. Studies oh yield and yield limiting factors and desirable yield components in five soybean cultivars. Paper presented in "Internal seminar on plant physiology[1]" held at 1AR1, New Delhi. Abst. No.6 of session, 1982.
4. Naumaier N, E Torres, EAG Pereia, NP Costa, EF Queiroz. Effect of sowing date on seed quality of soybean. Revista Brasileira de Seinentes. 1979; 1(3): 77-89.
5. Paschal E. if II, MA Ellis. Variation m seed quality characteristics of tropically grown soybean Crop Sc. 1978; 18(4): 837-840.
6. Rant VM, VP Patil, SP Taware, GB Halvankar. Stability of soybean varieties for different seasons. Biol. Ind. 1990; 1(1):21-26.
7. Sen SM, D Mukharjeee. Stability of soybean cultivars to different seasons. Presented in Ail India Soybean Workshop held at MACS, Pune, 1986, 17.
8. Shahidullah M, MA Rahman, M Hussain. Effect of time of sowing and variety on the growth and yield of soybean. Bangladesh J Bio. Sci. 1979; 8(1):49-54.
9. Shelar VR. Performance and seed quality as influenced by season, method of threshing, processing, storage, transportation and invigoration in soybean [*Glycine max* (L) Merritt] cultivars. Ph.D. Thesis, M.P.K.V. Rahuri, 2002.
10. Taware SP, VM Rant, GB Halvankar, VP Patil. Phenotypic stability analysis of soybean varieties in kharif and summer season. J Oil Seeds Res. 1994; 11(2):237-241.