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Propagation Techniques in Dolichos Bean

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ABSTRACT

The Dolichos bean can be used as a vegetable and pulse. These beans are commercially propagated by seeds. For seed production, the field should be free from of volunteer plants. The off-types and diseased plants should be rogued out from the main field at all stages based on morphological features. Adequate amount of water should be provided during reproductive stage for getting good quality seeds. The isolation distance of 50 m and 25 m will be maintained for foundation and certified seed production respectively. Fully matured pods are collected and threshing is carried out by beating with wooden mallet. Then the seeds are cleaned by winnowing. Usually, the seeds are viable for 24 months under room temperature. The cloth bags are used for short term storage and thick polythene bags are used for long-term storage.

INTRODUCTION

Dolichos bean is also known as Hyacinth bean *(Dolichos lablab* (Roxb.) L.) and belongs to the family Fabaceae. The dolichos bean is consumed as vegetable and pulse. It has higher levels of nutritive value compared to the French bean (Choudary, 2000). It can be cultivated in a wide range of soils with average fertility also.

SOWING

The seeds are treated with 600 g of Rhizobium culture for one hectare area by using rice gruel as a sticking agent. Then, the treated seeds are allowed to dry in shade for 15 - 30 minutes before sowing. Majority of pole types are photosensitive and bush types are photo-insensitive.

The pole types are normally raised during *kharif* season in the 45 cm^3 pits. The pits are dug at the spacing of 75 cm in rows and 125 cm between two rows. Generally, four to five seeds are dibbled per pit and the seedlings are thinned to three per pit.

The bush types can be raised during *kharif*, *rabi* and summer seasons. Normally, ridges are formed at 60 cm spacing and the two seeds per hill are sown on one side of the ridge at 15 cm spacing. Usually, 8 kg seeds are required pole types and 12 kg is required for bush type for one acre area.

AFTER CARE

The field should be free from of volunteer plants. Well drained areas should be selected for raising seed crop. Rogueing should be done to maintain genetic purity. The off-types should be pulled out from the field during vegetative, flowering and fruiting stages based on foliage, flower and pod characters. The plants affected by bacterial blight, anthracnose, Ascocyta blight and bean mosaic also rogued out immediately.

There should not be any water stress during flowering and pod development stages. The irrigation should be done immediately after sowing, life irrigation is provided on third day and subsequent irrigations are done once in seven to ten days. Basal application of 18 kg of N and 72 kg of P_2O_5 should be done (Veeraraghavathatham *et al*., 1998). The crop is hoed at 20-25 days after sowing. The pole types are to be staked with thin bamboo poles.

SEED STANDARDS

The minimum isolation requirements between different cultivars should be 50 m and 25 m for foundation and certified seed production respectively.

SEED EXTRACTION AND HANDLING

Dolichos beans are autogamous in nature and cross pollination through insects also occurred at minimum levels. The crop shall be raised a sole crop for seed production and pole types should be staked properly.

The harvesting should be done when few pods are dry and many numbers turned into yellow. Sometimes multiple harvests may be done. Shattering of pods is the major constraint at the time of harvest if several numbers of pods are dried. Therefore, harvesting should be done at humid early morning hours. The well matured mature pods are picked manually from the crop. Normally threshing is carried out by beating dried pods with wooden mallet or by a roller. Then the seeds are collected and debris is separated by winnowing. These seeds are dried up to nine per cent moisture under the tarpaulin on the threshing floor. This kind of drying is highly useful for long term storage with higher levels of viability. Usually, the seeds are viable for 24 months under ambient storage conditions. The seeds should be completely separated from other inert

matter and dried before packing. Mean seed yield will be 600-800 kg/ha (Chakraborthi and Parthasarathy, 2003).

STORAGE OF SEEDS

The pre-treated seeds are to be stored in bags or containers. Based on quantity of seeds and storage environment, the packing containers should be chosen. The seeds are continuously absorbing the moisture from atmosphere even the seeds are dried under safe moisture contents. High range of humidity will lead to enhancement of seed moisture that is not suitable for long term storage. This kind of high humid conditions prevails at sea shores, near lakes and rivers. The cloth bags are used for short term storage and these bags are porous in nature. These bags can maintain the seeds with good vigour for short term. They are cheap and easily manufactured by local tailor. Heavy amount of seeds can be stored in jute bags. Thick polythene bags are used for long-term storage.

CONCLUSION

The seed growers should adopt the standards prescribed by the seed certification agencies viz., free from of volunteer plants in the field, periodical rogueing of off-types and diseased plants, isolation requirements. Proper management of seed crop with sufficient irrigation and proper seed extraction and handling procedures must be followed to get higher yield and quality of seeds.

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