

Quality Seed Production of Lentil

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Abstract

In the view of the increasing demand for pulse crop in world's growing population, there is need to increase the production of pulse crop. 10 major and 5 minor pulse crop esteemed by FAO, which are grown in 105 countries. In which lentil is an important food legume crop consist about 25% protein 11% water and 60% carbohydrates. Calcium, Iron and niacin is also found in lentil. Lentil is requisite for us in different ways such as protein content, atmospheric nitrogen fixation, and improvement in soil fertility. In problem areas it used as cover crop to analysis the soil erosion. Good quality seed production is major challenge in lentil crop because it suffers ample yield losses due to biotic and abiotic stresses. The production of lentil was 6.33 million tonnes in 2018 with the annual growth rate 4.4% since previous two decades. India and Canada account for more than 50% total world's lentil production with highest productivity in Canada and lowest productivity in India in 2018.

Keyword- Legumes, Lentil, Soil fertility, Production, Rabi.

Introduction

Lentil is also one of the oldest and nutritious pulse crops which is cultivated in worldwide with different uses as food and feed due to protein rich grain and straw. It is mostly consumed as dry seed (whole decorticated, seed decorticated and split seed). In Indian subcontinent it is consumed as "Dal" by removing of outer cover (skin) and separation of cotyledon, snacks and soup preparation etc. The other name of lentil is split peas, red dhal and masur. It contains about 25% protein, 11, % water, 60% carbohydrate, vitamin A, potassium, vitamin B, fibre and iron. It belongs to family Fabaceae (Leguminiaceae) with chromosome number $2n = 14$. Lentil is primary pulse crop after chickpea grown in winter season covering 5.21% of total pulse area in India. In world, lentil is cultivated in 6.15 mha area with 63.15 million metric tonnes production of grain (FAOSTAT, 2021). In India, the area is 15.48 aces with the production 10.55 million tonnes (Anonyms, 2021) (in/countries-

by- lentil-production). Lentil can be divided into two group e.g.: small seeded group and bold seeded group. High use of chemical fertilizers in cereal crop mostly rice's and wheat to maintain their productivity has created an imbalance in soil fertility and threatened sustainability of food grain zone of South Asia, (Hoobs and Morsis, 1996). It has herbaceous annual plant, grown for its lens shaped seed. The length of lentil crop mostly 40cm tall and have will developed root system. 2 to 4 flower found in lentil inflorescence which is known as raceme with short ovary hairy on its inner surface. The colour of lentil I varies from yellow to red, orange to green, brown to black and also different in size. Lentils have an important role in religious point of view because spouted lentil are offered to God in many temples. It is favourable for multicopying and relay cropping due to their short duration of maturity. Lentils hinders the rapid weed growth and protect our crop from insect and pest (Kumaret al., 2013). Lentils are 3rd Protenious pulse crop after soyabean and hemp. International Centre for Agricultural Research in Dry areas (ICARDA) have largest germplasm collection of lentil about 11643 accessions. In that collection 102197 seep sample has been provided by ICARDA to scientists in 52 countries since its establishment. India is 1st in consumption and 2nd in production in world. Hindukush mountains are the origin place of lentil. Eastern Mediterranean littoral (Asia minor, Egypt, Greece) are native place of lentil, where from it spread east to India. (Aykroid and Doughty, 1964). Lentil fix approximately 10 – 30 kg nitrogen per hectare (Muehlbouret al, 2002, Hussain et al, 2019). Albumins, globulins, glutei's are major protein of lentil (Baye et al 2010, Jarpa Parra, 2018).

Selection of variety:

The selected variety should be free from biotic and abiotic stresses, having high yield potential and also have good nutrients. There are large number of varieties are available. The varietal selection should be done according to need base, zone wise etc. Lens orientalis, Lens ademensis, Lensnigricans and Lens provides have resistance against to Ascochyta blight (Bayya and Erskine, 1994). Some resistant and high yield variety have developed such as Pant L406 (India), Masoor 93 (Pakistan), Nugget, Nippers and Cassab (Australia) and Matador (Canada).

Selection of land:

There is no requirement of specific criteria fir land. I addition, land should be free from volunteer plant, friable so seeding could be done at uniform depth.

Isolation distance:

Lentil is a self-pollinated crop. For foundations seed the isolation distance should be ten meter and five meters for certified seed from other lentil field or same variety field.

Land preparation:

Loamy soil is best for lentil seed production. It favour neutral ph. One ploughing and two to three harrowing are required for field preparation of lentil seeding. Lentil can't grow in acidic soil. Leveling is necessary for ease in irrigation and good drainage.

Time of sowing:

Lentil is cold loving crop. Middle October is best time for sowing of lentil crop. 1st fortnight of November is suitable for lentil in irrigated condition in North India.



Figure; 1 Lentil

Seed Rate:

For small seeded: 25 to 30 kg per hectare; for Large seeded 35 to 40 kg per hectare and 50 to 60 kg per hectare are recommended for late sowing variety.

Spacing:

For the sowing of lentil seed the row-to-row distance is 25 to 30 cm and plat to plant distance is 1 to 2 cm. The seed should be shown in 2 to 3 cm in depth in soil.

Seed treatment:



Seed should be treated with Chloropyriphous 20 EC @ 8 ml per kg seed or culture the 10 kg seed with one packet of rhizome plus PSB. For the avoidance of fungal contamination, seed should be treated with Thirum @3gm orcarbendazim @2.5gm per kg seed.

Application of fertilizer:

Fertilizer should be given after testing of soil. Generally, 20 to 40 kg nitrogen and 60 to 75 kg phosphorus are suitable for one hectare. 0.5 percent zinc sulphate and 2.5 percent lime are applied in zinc deficient soil.

Weed Control:

For the effective control of weeds one to two manual weeding practices are Applied. 1st weeding at 25 to 30 days and 2nd weeding are applied at 40 to 50 days after sowing.

Plant Protection:

Monocrotophos solutions (1000 liters per hectare) are applied to control the hairy caterpillar pod borer. Generally, lentil is not affected by any serious pest.

Harvesting and Threshing:

Lentil crop become ready for harvesting when plant become yellow, seed are hard and leaves begin fall. Plant can be supplanted by hand or cut and placed into small bundles to dry which takes several days. Threshing is hoisted with stick and seed is cleaned with vinovino. The clean seed should be sundried for 3 to 4 days to bring their moisture content at 9 to 10 percent. The seed should be safely stored in bins and fumigated to protect them from bruchids.

Conclusion:

Due to the various uses of lentil crop it is a constitutive legume crop that contributes inhuman and animal nutrition and also increase the soil fertility by the fixation of environmental nitrogen. It most important winter crop its seed is highly nutritious. Thus, it increases the health concern of people especially South Asia and increase the live hood of the marginal farmer. About 0.3 million MT of pulse are exported by india and 2.5 million MT are imported from worldwide which account about worth 1.63 billion USD (<http://agriexchange.apeda.gov.in>). Lentil is rich source of mineral, polyphenol protein. It has less fat and high fibre about 0.7 to 4.3 g and 5.0 to 26.9 g respectively. In some countries the consumption of red lentil has gradually decreased due to their steady hydration. Taking more time for cooking and test less flavour. Ultimately lentil has various benefits for our health and

wealth if it include in our daily diet. It fulfils the deficiency of protein and potassium. Lentil is ecofriendly, require less agronomical practices and less economic cost of farmers.

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