Agri Articles
(e-Magazine for Agricultural Articles)
Volume: 06, Issue: 03 (MAY-JUNE, 2026)
Available online at http://www.agriarticles.com
©Agri Articles, ISSN: 2582-9882

Package and Practices of Summer Moong

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Moong (*Vigna radiata)* also known as Green Gram, is a short-duration pulse crop widely cultivated in India during the Kharif, Rabi, and Summer seasons. It is popular due to its rich protein content and its ability to improve soil fertility through nitrogen fixation. With its low input requirement and short maturity period (60–75 days), moong is an ideal crop for crop rotation and sustainable farming in India.

Soil Selection: Moong grows best in sandy to loamy soils with a pH between 6.5 and 7.0. Saline-alkaline or waterlogged soils are unsuitable for raising this crop.

Climatic Requirements: Moong is considered to be the hardiest of all pulse crops. It requires a hot climate. Moong is also suitable as a kharif crop.

Improved Varieties

1. SML 1827 (2019): It has erect plant type with medium stature. It bears pods in clusters and has synchronous maturity (about 62 days). Each pod contains about 10 seeds. It is resistant to yellow mosaic disease. Grains are shining green and medium sized with good culinary properties. Its average yield is 5.0 quintals per acre.
2. SML 832 (2010): It has erect plant type with medium stature. It bears pods in clusters and possesses early and synchronous maturity (about 61 days). Pods are of blackish brown colour at maturity. Each pod contains about 10 grains. Grains are shining green and medium sized with good culinary properties. Its average yield is 4.6 quintals per acre.

Agronomic Practices Land Preparation: Give 2 or 3 ploughings to the land followed by planking to crush the clods and remove the weeds. Summer moong can be sown without any preparatory tillage after the harvest of wheat. The sowing can be done with zero-till drill if there is no wheat straw in the field. In case of combine harvested wheat crop, summer moong can be sown with PAU Happy Seeder/Smart Seeder/Super seeder in the presence of wheat straw under optimum moisture. Under dry condition, it can be directly sown with Happy seeder/Smart seeder followed by immediate irrigation.

Seed Rate: Use 15 kg seed for SML 668 and 12 kg seed per acre for other varieties.

Seed Inoculation: Inoculate the seed with single packet of consortium biofertilizer (*Rhizobium* sp.) at the time of sowing. Moisten the seed using one packet per acre with about 300 mL of water. Mix the seed thoroughly with culture and let it dry in the shade. Sow the seed within one hour of application of biofertilizer. Inoculation of seed with consortium biofertilizer enhances grain yield.

Time and Method of Sowing: Sow the crop from 20 March to 10 April. Its sowing can be done up to 3rd week of April. However, there is a risk of pre-monsoon showers at maturity. Sow the crop in rows 17.5 to 22.5 cm apart. The seed should be placed 4 to 6 cm deep with seed drill/kera/pora/zero-till drill/happy seeder

Raised Bed Sowing: Sowing of summer moong in medium to heavy textured soils should be done on beds spaced 67.5 cm apart (37.5 cm bed top, 30 cm furrow) by using wheat bed planter. Sow two rows per bed with row spacing of 20 cm using the same quantity of seed, fertilizers and following other cultivation practices as in flat sown summer moong. Irrigation is applied in furrows by taking care that beds are not over flooded. This practice not only saves the crop from damage by rain especially at emergence but also saves about 20-30 per cent irrigation water along with 10 per cent increase in yield over flat sowing.

Fertilizer Application: Drill 5 kg of N(11kg urea) along with 16kg P_2O_5(100 kg of SSP)per acre at the time of sowing to summer moong to be sown after wheat.

Weed Control: One or two hoeings are recommended to keep weeds under check. Give the first hoeing four weeks after sowing of the crop and second hoeing, if needed, about two weeks thereafter. Alternatively, spray 300 mL per acre imazethapyr 10 SL at 20-25 days of sowing for controlling grassy, broadleaf weeds and sedges. Dissolve the recommended quantity of herbicide in 150 litres of water per acre and spray uniformly.

Irrigation: Apply 3 to 5 irrigations to the crop depending upon the weather conditions and water holding capacity of the soil. Apply first irrigation 25 days after sowing. The last irrigation should be stopped about 55 days after sowing for obtaining high yields and synchronous maturity.

Harvesting and Threshing: Harvest the crop when about 80% of the pods mature. Spike tooth type power thresher for wheat can be used to thresh moong after proper modifications.

Plant-Protection Measures

(a) Insect Pests

1. Thrips: Summer moong crop is severely attacked by the thrips which is very small, dark brown insect, found in flowers and cause flower-drop, deformation of pods, deterioration of grain quality and ultimately high reduction in yield. Sometimes, there may be complete failure of the crop. For its management, install blue sticky traps @ 30 per acre at flower initiation stage to manage the pest. Replace the traps after 10 days, if necessary or spray the crop at flower initiation stage using homemade neem extract @ 1750 mL per acre using 80-100 litres of water per acre with manually operated knapsack sprayer.

(b) Diseases

1. Yellow mosaic disease: It is a viral disease transmitted by whitefly. The leaves of the diseased plants develop irregular yellow and green patches. Infected plants bear no or only a few pale pods. Incidence of this disease is very less in timely sown crop. The disease can be controlled by the following measures:

- Rogue out the affected plants early in the season.
- To manage this disease, grow yellow mosaic virus tolerant varieties SML 1827, Mash 1137 and Mash 1008.

2. Root rot: Root rot caused by *Macrophomina phaseolina* produces dark lesions on leaves, branches, stems and roots. The tissues of the affected portion become weak and shred easily. Pycnidia can be seen on the affected portion.

3. Rhizoctonia blight: It is caused by Rhizoctonia solani. It starts from leaf laminae or petioles or the young branches. Eventually, the top of plants become blighted and patches of such plants are conspicuously seen in the field. Whitish web like growth develops on leaves in humid weather. Dark brown sclerotia develop on infected tissue. Infestation on crop comes from the weeds in the field. Keeping the field weed free helps to check the disease.