Mung bean (Vigna radiata)

A Food Legume Adapted to Hot, Dry Conditions. The Latin names for (green gram and black gram) are vigna, radiata andi Vigna mungo respectively. Often called (green gram) or (golden gram) in international publications, it is also cultivated in several countries of Asia, Africa, and South America, Mung bean [Vigna radiata (L) Wilczekl seeds range from green to brown (some tropical varieties are yellow). and are about half the diameter of a soybean seed.

Mung bean plants look more like a garden bean than a soybean plant, being about 24 ta 32 inches tall, and having a moderate number or branches with smaller leaves than soybeans. Pods are 3 to 4 inches long, each having 10 to 15 seeds. There are several pods clustered at a leaf axil, with typically 30 to 40 pods per plant. The pods turn darker in color as they mature.

Planted in early June, the crop will begin to flower in 50 to 60 days, and then continue flowering for a few weeks. The crop is usually ready to be harvested in early to mid-September. Leaves will dry down but may not drop off completely. Mung bean is fairly well adapted to sandy loam soils and dry conditions. It has good potential for double cropping after wheat or canola in the southern part of the state.

Mung bean is grown mainly in mix or intercropping with cereal crops such as maize and sorghum. However, there are few commercial farmers who grow mung bean as a sole crop.

Mung bean divided according to the color of seeds into three major groups:

1.Golden gram: Yellow seed color, easy to shattering pods, Cultivated in India and is used to improve soil properties.

2. Green gram: Green seeds, using food for humans.

3.Black gram: Seeds dark gray color to black, unknown, in Iraq used to improve soil properties.

Utilization:

Mung bean is used in several food products, both as a whole seed and in processed form. Whole seeds are sold for use in soup mixes or to produce bean sprouts for salads. Processed mung beans are used for soup- bases or sometimes for bean flour. Like most legumes, mung beans are relatively high in protein, around 25%of the seed by weight. The amino acid profile of mung beans, similar to other beans, is complementary to cereal grains.

Since mung beans are a relatively high priced seed (about twice the cost of soybeans), it is not cost effective to feed good quality seed to livestock. However, splits, cracked seed, and other material left after cleaning mung beans are often fed to cattle, substituting for part of the soybean ration.

Land Preparation:

Growing mung bean after rice sorghum of maize is best. Avoid planting mung bean after mung bean because disease organisms from the previous mung bean crop may affect the following mung bean crop adversely It is recommended to accurately prepare the land prior to sowing. This will facilitate smooth seedling emergence germination, and better conditions for young seedling growth and development. It is ideal to prepare the field by plowing, harrowing and leveling.

Planting:

Sow seeds on raised beds in two rows per bed, spaced 45 cm apart. The seed rate varies with /seed size and season. It is usually 20 kg/ha in spring and autumn, and 16 kg/ha in Summer. The number of plants maintained per meter row length is 20 in spring and autumn, and 15 in summer.

Sow seeds on raised beds in two rows per bed, spaced 45 cm apart. The seed rate varies with seed size and season. It is usually 20 kg/ha in spring and autumn, and 16 kg/ha in summer. The number of plants maintained per meter row/length is 20 in spring and autumn, and 15 in summer.

[One acer is equal to 4046.825 sq. meter) [1 Pound = 453.59237 Grams].

Sowing time:

Mung beans should ideally be planted in early June although planting dates from the latter part of May through mid- June are appropriate.

Mung bean cultivated in Iraq in summer from June to early August.

Irrigating:

Irrigate depending upon weather soil and field-conditions. Usually the first irrigation is required just after seedling emergence. Later apply two to three more irrigations at 10 td15 day intervals during the dry season. Generally, no irrigation is needed during the rainy season except when drought occurs

Fertility:

As a legume that fixes its own nitrogen, mung beans do not need nitrogen fertilizer. However, seed should be inoculated with the appropriate Rhizobium species. Using the amounts recommended from soil tests for soybeans would be appropriate. Soil pH should be close to neutral. When mung bean is double cropped after wheat, no extra fertilizer is usually applied after wheat harvest.

Localized fertilization with phosphates is recommended. A lack of plant available phosphorus is a limiting factor for gown and yield. Therefore, the supply of phosphorus will increase the absorption of other important nutrients, resulting in considerable increase of yields. A fertilizer mix containing N, P2O5 25 and K2O at the rate of 15, 60 and 100 kg/ha, respectively is broadcasted and incorporated into the soil before planting side dressing of nitrogen at 15 kg/ha is done at flowering stage. Beds should be spaced one meter apart from the center of one bed to the center of the next.

Harvesting:

Harvest when pods are mature and dry but before they start shattering. Manual harvesting is usually practiced in many parts of world. Harvest and post-harvest handing can cause significant grain losses. Use appropriate management practices to reduce the losses.

Pod maturity in mung bean is not uniform because the plants flower over an extended period. This makes it difficult to decide when to harvest. Generally harvest should begin when one halt to two-thirds of the pods are mature. Seeds might be between 13-15% moisture at this time. Some growers swath the plants to allow further maturity of the pods and then combine using a pick up header on a small grain combine. This is an especially useful harvest system for the vine type varieties or when there is delayed maturity or problem weeds present. Swathing should be done earlier in the day to prevent severe shatter losses.

Direct combining can be done in weed free, uniformly mature fields of the upright growth habit type of mung bean. It is also important to adjust the cylinder speed and concave Clearance for complete threshing with a minimum of seed breakage. After combining the seed should be quickly cleaned to remove green pods, leaf material, debris, etc. which could create drying and storage problems. In developing countries, the mung beans are handpicked as the pods mature. As many as five pickings are done on some high yielding lines.

Weed Control:

1. Mechanical: Rotary hoeing and/or field cultivation should be used as required removing weed competition until flowering begins. Later emerging weeds are not as damaging to yield as the early ones. Avoid cultivation in the field when the plants are still damp because this can spread bacterial and fungal disease. Growers planting mung bean for the first time should plan on using wider row spacing so that cultivation can be done if weeds become a a problem. Hand weeding at about 40 days after planting is beneficial.

2. Chemical: Dual (metolachlor) is approved for preemerge or preplant incorporate use and Treflan (trifluralin) is available for preplant incorporate use. Both herbicides give excellent grass control and fair to good suppression of annual broadleaves. appropriate rate for your soil type and organic matter content. Currently no postemerge chemicals are available for control of later emerging weeds. Broadleaf weed control is difficult because many of the chemicals damage the mung bean. It is hard to get label clearance for a minor crop like mung bean, but it may fit under the dry pod crop grouping of certain labels already cleared. Check with your local Extension agent, consultant or chemical company representative before using any chemical on mung bean.

Because mung beans are eaten directly by humans the label restrictions are quite strict as to use and timing of all chemicals applied to the crop.

Yield Potential and Performance Results:

The yields of mung beans depend largely on weather conditions, soil cultural practices, and variety. Yields can rang from 300 to over 2,000 pounds per acre. Yields from second crop plantings are not as large as main crop yields.

Drying and storage:

Prior to Storing, remove all leaf material, stems, immature pods, dirt, insect parts and other debris. Mung beans at about 12% moisture can then be stored in regular grain bins usuallly fumigated to control bean weevils. If beans are higher in moisture then 12% they can be dried slightly dry moving unheated air though thin layers until they are near the 12% value. Because they will be sprouted and eaten direct, care should be taken to keep all possible contaminants away from the storage area.

Diseases and Their Control:

Mung beans are susceptible to the usual array of pathogens which attack other legumes such as white mold, Phytophthora, mildew, bacterial rots, Rhizoctonla, etc. Proper rotation, tillage practices, and water management (If under irrigation) can be effective in reducing the impact of these diseases. Contact your Extension agent or crop consultant for assistance.

Insects and Other Predators and Their Control:

Mung beans do not generally require insecticide sprays to control problems in the field. Seed corn maggot and wireworms could attack seeds in the early germination period and reduce stand under certain conditions. Occasional grasshopper or caterpillar infestation could ocCur and result in defoliation. Mung beans are no more affected by insect problems than the other egumes. Weevils can attack the seed in storage.