



Farming of kidney beans (Rajma) and its health benefits

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Kidney beans have become famous all over the world due to its health benefits as well as their savory texture. Kidney beans are termed as “King of Nutrition”. Brazil is top producer of kidney beans in the world. Red kidney beans are popularly known as “Rajma” in northern India. Various healthy dishes can be prepared using this bean in India. These beans are grown in most of the state’s northern and southern parts of India. Kidney beans are also called as “common bean”, “haricot bean”, “navy bean or snap bean”.

Health benefits of Rajma/Kidney Beans : Some of the health benefits of kidney beans are as follows:

- Kidney beans may help in preventing cancer.
- Kidney beans may improve brain function.
- Kidney beans may control blood sugar levels and may prevent diabetes.
- Kidney beans are high source of protein.
- Kidney beans may help in bone strength/prevent osteoporosis
- Kidney beans may help in preventing bad cholesterol (LDL).
- Kidney beans help in maintaining healthy skin.
- Kidney beans are rich in fibre.
- Kidney beans may help in preventing irritable bowel syndrome (IBS).
- Kidney beans are heart healthy.
- Kidney beans help weight loss due to its high fiber content.

Nutritional value per 100 g :

- Energy 1,393 kJ (333 kcal)
- Carbohydrates 60.01 g
- Sugars 2.23 g
- Dietary fibre 24.9 g
- Fat 0.83 g

- Protein 23.58 g

Vitamins :

- Thiamine (B1)(46%) 0.529 mg
- Riboflavin (B2)(18%) 0.219 mg
- Niacin (B3)(14%) 2.06 mg
- Vitamin B6(31%) 0.397 mg
- Folate (B9)(99%) 394µg
- Vitamin C(5%) 4.5 mg
- Vitamin E(1%) 0.22 mg
- Vitamin K(18%) 19 µg

Minerals :

- Calcium (14%) 143 mg
- Iron (63%) 8.2 mg
- Magnesium (39%) 140 mg
- Phosphorus (58%) 407 mg
- Potassium 30%) 1406 mg
- Sodium (2%) 24 mg
- Zinc (29%) 2.79 mg

Other constituents :

- Water 11.75 g

Major Rajma Growing States in India : Maharashtra, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, West Bengal, Uttar Pradesh, Tamil Nadu, Kerala and



Karnataka.

Local names of Kidney Beans in India: Kidney Beans (English), Rajma (Hindi, Marathi, Punjabi, Gujarati, Konkani, Malayalam), Barbati Beej / Raajma (Bengali), Baragudi Chhuin / Rajma (Oriya), Capparadavare (Kannada), Chikkuduginjalu / Nallachikkudu (Telugu).

High yielding hybrid varieties of Rajma/Kidney Beans in India : Some of the improved varieties of Rajma beans are, VL Rajma 125, VL Rajma 63, PDR-14, HUR-15 (Malviya Rajma 15), HUR-137 (Malviya Rajma 137), Amber, Utkarsh and Arun.

Climate required for Rajma cultivation : This crop grows well in tropical and temperate areas receiving 60

to 150 cm of rainfall annually. Ideal temperature for better yield is 15°C to 25°C.

Suitable soil for Rajma Cultivation : Kidney beans thrives on a wide variety of soils. However, well drained loamy soils are the best for its cultivation. This crop is very sensitive to salinity and soil. pH should be 5.5 to 6.0 to obtain better yields. Soil with high organic matter/FYM promotes more vegetative growth. This crop requires fine seedbed and good moisture in the soil for better germination of the seeds. A deep ploughing should be followed by 3 to 4 harrowing will get to the fine tilth of the soil.

Preparation of land : 2 to 3 ploughing should be given by tractor or local desi plough in the main field and the soil. Must be pulverized with levelled field which makes the soil to fine tilth. Apply Farm Yard Manure (F.M. Y) or any organic compost to make the soil rich in fertility. Field must have good internal drainage, so the water stagnation could be avoided.

Optimum seed requirement : The seed rate required in Rajma/Kidney Beans Farming is about 50 kg/ha.

Seed treatment in Rajma: The Rajma/Kidney Beans seeds must be treated before sowing and for that purpose we may use Captanor Thiram @ 4 g/per kg of seeds. The bio-fertilizer should also be applied @200 grams per 30 kg of seed mixed with about 1.300 litre of water or



cooled off boiled rice starch and after mixing seeds need to be dried in shade for 30 to 45 minutes before sowing.

Growing season of red Kidney Beans : Red kidney beans are cultivated in both *Rabi* and *Kharif* season in various parts of India. Sowing season of kidney beans varies from state to state. For U.P. and Bihar regions month of November, for Maharashtra - Mid of October Early varieties and late varieties can be sown up to 15th November. For *Kharif* season crop, Middle of May to Middle of June is best sowing season. For spring season crop, mid Feb. to 1st week of March is appropriate.

Spacing in Rajma/Kidney Beans Farming : Row-to-Row spacing is about 30 cm and Plant-to-Plant spacing is about 10 cm to 15 cm. Seeds should be sown @ depth of 6 cm to 7 cm to absorb moisture in the soil.

Manures and fertilizers: This crop lack biological Nitrogen fixation due to poor nodulation. Therefore it needs good amount of Nitrogen about 100 to 125 kg/ha. This crop also requires 60 to 70 kg of P₂O₅/ha and adding

potassium hardly effects the yield. FYM have been traditionally used in agriculture for maintaining soil fertility due to nutrient content, higher organic matter, increased water holding capacity and increased uptake of nutrient and yield stability. FYM also improves physical (soil texture, soil structure), chemical (soil pH) and biological conditions of soil.

Irrigation in Rajma crop: This crop requires pre-sowing irrigation for better germination of the seed and critical stage for irrigation is about 3 weeks to 4 weeks after sowing. Four irrigations @ 25, 50, 75 and 100 days after sowing the seed are required for optimal yield. This crop does not require frequent irrigations in rainy season. In case of heavy rains and make sure the soil has excellent drainage to avoid the water logging.

Weed control as essential requirement: At initial stage of plantation this crop suffers from weeds, first one month period is critical to control the weeds. One hand weeding can be carried out after 1 month of sowing. Pre-emergence of pendimethalin @ 1 kg per hectare (or) 1 kg/ha of fluchloralin should be incorporated as part of pre-plantation process.

Pests and diseases management: To protect the plants from anthracnose or any leaf diseases, spray Captaf or Diathene M-45 every 9 to 14 days interval. Captaf, 1 g/lit. of water or Diathene M-45, 2 g/lit. of water should be sprayed. To control the Pod borer pest, spray Endosulfan @ 1.5 to 2 lit./500 lit. of water per hectare.

Harvesting/Cutting of Rajma: Rajma/Kidney Beans crop will be ready for cutting when the pod turns to brown colour and the harvesting to be done after 120 to 130 days for maturity. Harvested plants should be kept on sun for 3 to 4 days and threshing can be done by bullocks or with sticks/sickle. Use seed bins for storing the clean Kidney Bean seeds.

Yield of Rajma/Kidney Beans : Yield of any crop mainly depends on three factors:

- Type of soil
- Farm Management Practices
- Variety of seed.

Depending on these factors, we may take an average yield of Rajma about 10 to 12 quintals/ hectare.