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Kidney Bean (*Phaseolus vulgaris*) Cultivation in India

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Kidney beans is also known as the chilli bean because of its dark red color and the visually resemblance the shape of a kidney. Kidney beans are a good source of protein also it is excellent source of molybdenum. It contain good source of cholesterol-lowering fibre. Rajma is a popular dish from the North Indian cuisine made from red kidney beans. Maharashtra, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, West Bengal, Uttar Pradesh, Tamil Nadu, Kerala and Karnataka are major kidney bean growing states in India.

Soil

It can be grown on wide range of soils from light sandy to heavy clay soils. Well drained loamy soil is good for kidney beans cultivation. It is very sensitive to saline soils. Gives best result when pH of soil is 5.5 to 6.

Popular Varieties with their Yield

VL Rajma 125: Suitable for timely sown of Uttarakhand Hills. 4-5 seeds per pods and 100 seed weight about 41.38 gm.

RBL 6: Suitable for irrigated areas of Punjab state. 6-8 seeds per pod and seeds are of light green color.

Other state varieties:

Other high yielding varieties grown in India are HUR 15, HUR-137, Amber and Arun. Also Arka Komal, Arka Suvidha, Pusa Parvathi, Pusa Himalatha, VL Boni 1, Ooty 1.

Land Preparation

Give two to three ploughing to bring soil at fine tilth. Make field level so that water stagnation should not occurred in main field. Crop is very sensitive to water logging. At last ploughing apply Farmyard Manure or well decomposed cow dung@60-80qtl/acre.

Sowing

Time of sowing: For spring season, best time for Kidney beans cultivation is February-March and for Kharif season, it is sown during May-June month. In Punjab, some farmers sow Kidney beans in last week of January.

Spacing: For early sown varieties use spacing of 45-60 cm between rows and 10-15 cm between plants. For pole type varieties sown at distance of 1 m in hill @3-4 plant per hill.

Sowing Depth: Sow the seeds at depth of 6-7 cm.

Method of sowing: For sowing dibbling method used. In plain area seeds are sown in line or on bed where as in hilly areas, seeds are sown on ridge.

Seed Rate: For early sown varieties use seed rate of 30-35kg/acre. For pole type varieties sown at distance of 1m in hill@3-4plant per hill with seed rate of 10-12kg/acre.

Seed Treatment: Before sowing treat seeds with Thiram@4gm per Kg of seeds. Dried seed in shade and then sown immediately.

Fertilizer

Apply Nitrogen@40kg/acre and Phosphorus@25kg/acre in form Urea@87kg and SSP@150kg/acre. Do soil testing before sowing for accurate fertilizer application.

Weed Control

Initial growth period is crucial for crop growth. Avoid weed infestation at this stage. Complete weeding operations synchronized along with fertilizer and irrigation operations. Use Fluchloralin@ 800ml/acre or Pendimethalin@1ltr per acre as pre-emergence weedicide.

Irrigation

For better germination of seed give pre-sowing irrigation. 6-7 irrigations are required during growing season. Irrigation on 25th day after sowing and three irrigation at 25 days interval are necessary to get optimum yield. Give irrigation prior to blooming, during flowering and at pod development stage, water stress at these stage will lead to yield loss.

Plant Protection

A) Pest and their control:

Thrips: Commonly observed pest. Mostly observed in dry weather. They suck sap from the foliage and results in curling of leaves. Also causes flower drop. To check severity of thrips incidence, keep blue sticky traps @6-8 per acre. Also to reduce the incidence spray Verticillium lecani@5gm/Ltr water

2) If incidence of thrips is more, then take spray of Imidacloprid 17.8SL or Fipronil @1ml/Ltr water or Acephate 75% WP@1gm/Ltr.

Aphid: They suck sap from the leaf. They excrete honey like substance and developed sooty mould i.e blackish colour fungus on the Calyx and pods thus deteriorate quality of product. To control take spray of Acephate 75SP@1gm/Ltr or Methyl demeton 25EC@2ml/Ltr of water. Soil application of granular insecticides viz Carbofuran, Phorate@4-8kg/acre on 15 and 60 days after transplanting were also effective.

Mite: These are widely distributed pest observed throughout the world. Nymphs and adults feed exclusively on the lower surface of the leaves. Infected leaves gives cup shape appearance. Heavy infestation results in defoliation, bud shedding and drying of leaves. If Infestation of yellow mite is observed in field, spray of Chlorfenapyr@15ml/Ltr, Abamectin@15ml/Ltr are found effective. Mites is a serious pest and it may cause yield loss up to 80%. For effective control spray Spiromesifen 22.9SC @200ml/acre/180Ltr of water.

B) Disease and their control:

Powdery Mildew: Patchy, White powdery growth appear on lower side of leaves. It parasitizes the plant using it as a food source. It can developed at any stage of crop development. In severe infestation it causes defoliation. Avoid water lodging in field. Keep field clean. To Control spray with Hexaconazole along with sticker@1ml/Ltr of water. In case of sudden rain, chances of powdery mildew. Mild infestation take spray of water soluble Sulphur@ 20gm/10Ltr of water 2-3 times with interval of 10 days.

Wilt: Moist and poorly drain soil causes damping off disease. It is soil borne disease. Water soaking and shrivelling of stem occurs. Seedlings killed before emergence.

To control Wilt, Drench nearby soil with Copper oxychloride@25gm or Carbendazim@20gm/10Ltr of water. To control Wilting of plants due to root rot do drenching with Trichoderma bio fungus@2.5kg/500Ltr water, near to roots of plants.

Yellow Mosaic: Light and green patches observed on leaves. In early stage plant growth get stops. Yellowing, chlorotic ring spots on leaves and fruits. Select healthy and disease free seeds for cultivation. Uproot and destroyed infected plant away from field. If observed in field to control it take spray of Acephate 75SP@600gm/200Ltr or Methyl demeton 25EC@2ml/Ltr of water.

Harvesting

Harvest when pods are full grown and ripe and there color turn to yellow. Also leaves turn yellow and majority of leaves drop. Depending upon variety use pods are ready to harvest 7-12 days after flowering. Overall crop is ready to harvest in 120-130 days. Do harvesting at right time as delay cause shattering. Keep harvested plant for three-four days in sun. After proper drying of crop, threshing is done with help of bullocks or with sticks.

Post-Harvest

Kidney beans required little processing after harvesting but take care during storage to maintain good quality. Before storing, do sorting and remove damaged, infected beans. Heat and humidity cause deterioration in quality so always stored beans in cool, dark and dry place.