

भारत सरकार
कृषि एवं किसान कल्याण मंत्रालय
 (कृषि, सहकारिता एवं किसान कल्याण विभाग)
 दलहन विकास निदेशालय
 छठवीं मंजिल, विन्ध्याचल भवन
 भोपाल-462004 (म.प्र.)



Government of India
Ministry of Agriculture & Farmers Welfare,
Deptt. of Agriculture, Cooperation & Farmers Welfare
Directorate of Pulses Development
6th Floor, Vindhyaachal Bhavan
Bhopal - 462004 (M.P.)

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RAJMASH
 Scientific Name:
Phaseolus vulgaris L.

Nutritive Value:

Protein	26-28%	Calcium	260 mg/100g
Fat	0.3-0.5%	Phosphorus	410 mg/100g
Carbohydrate	62-63%	Iron	5.8 mg/100g
Fiber	17-18%	Calorific value	345-346 Kcal/100 g

Crop Products:

- Consumed as Whole in Curry, Salad.
- Used as a source of food, feed, fodder.

Economic importance:

Rajmash, an important pulse crop, with high yielding ability as compared to gram and pea, require focussed attention both at the development and policy front. It is grown in Maharashtra, H.P., U.P., J&K., and NE states covering 80-85 thousand ha area. However, its cultivation during rabi and summer is also gaining popularity in northern Indian plains. Traditionally Rajmash is grown during kharif in Hills of Himalayas, however; high yield is attainable in Rabi in plains due to better management.

Sowing Season: Kharif, Rabi/Spring

Sowing Time : Kharif (Hills) - 1st week June to 1st week of July;
 Rabi (Plains) - 2nd fortnight of October
 Spring (Lower hills) - 2nd fortnight of March.

Spacing : Kharif (Hills) - 45-50 cm x 8-10 cm;
 Rabi & Spring - 40 cm x 10 cm (irrigated)
 30 cm x 10 cm (Rain fed)

Seed rate : 100-125 kg/ha

Soil type: Light loamy sand to heavy clay soil under adequate moisture.

New Varieties:

Year	Varieties
2002	IPR 96-4 (Amber)
2003	Kailash
2004	GR-1
2005	IPR 98-5 (Utkarsh), Shalimar Rajmash-1
2007	IPR 98-3-1 (Arun)
2018	RKR 1033 (Kota Rajmash 1), Shalimar Rajmash 2 (SKU-A-R13 2)

State –wise recommended varieties:

State	Recommended varieties
U.P.	HUR-137, Malviya Rajmash-137
M.H.	Varun (ACPR-94040), HPR-35
Bihar	IPR 96-4 (Amber)
Rajasthan	Ankur
Karnataka	Arka Anup
Gujrat	Gujrat Rajma-1
Uttarakhand	VL Rajmash 125, VL Bean-2



White Rajmash



Red Rajmash



Black Rajmash

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सत्यमेव जयते

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Climate: The ideal temperature range for proper growth of this crop is 10-27°C. Above 30°C, the flower drop is a serious problem. It is highly sensitive to frost and water logging.

Plant Nutrient Management: Application of 90-120 kg N ha⁻¹ has been found optimum. Half of the nitrogen should be applied as basal during sowing and rest half as top dressing after first irrigation. Significant response to P application has been obtained up to a level of 60-80 kg P₂O₅ per ha.

Weed Management: One hand weeding/hoeing at 30-35 days after sowing or application of a pre-emergence herbicide like Pendimethalin @ 1 to 1.5 kg a.i./ha. in 500-600 liters of water immediately after sowing helps to keep the losses by weeds below ETL (Economic Threshold Level).

Irrigation : Rajmash is the most irrigation responsive pulse crop due to its shallow root system and high nutrient requirements. It requires 2 to 3 irrigations in NEPZ and 3 to 4 irrigation in CZ for achieving highest productivity. Irrigation at 25 days after sowing is most critical followed by irrigation at 75 days after sowing.

Cropping System:

In hills, it is grown as intercrop with maize in 1:2 ratios. It is also grown mixed with maize and soybean.

In plains it is grown as spring season crop after harvesting of potato and mustard.

Harvesting/Threshing:

Full maturity judged by severe leaf fall, changing colour of pods and hardness of the grains. The clean seed should be sun dried for 3-4 days to bring their moisture content at 9-10%.

Storage:

Storage material with ALP @ 1-2 tablets per tonne before onset of monsoon and again after the monsoon. The small quantity of the produce can also be protected by mixing inert material (soft stone, lime, ash, etc) or by smearing edible/non-edible vegetable oils or by mixing plant products like neem leaf powder at the rate of 1-2% w/w basis.

Yield: A well managed crop can easily give 20-25 qtls/ha yields under irrigated conditions of plain and 5-10 qtls/ha under rain fed conditions of hill with 40-50 qtls/ha of straw for cattle's.

Recommendation to achieved higher production:

- Deep summer ploughing once in 3 years.
- Seed treatment should be done before sowing.
- Application of fertilizer should be based on soil test value.
- Weed control should be done at right time.
- Adopt integrated approach for plant protection.

Insect-Pest Management:

Leaf Miner:

- Spray of Cypermethrin 0.002% /ha.
- Roughing of infected plants
- Remove and destroy crop residues and all plant parts with symptoms of damage by bean flies.

Stem fly:

- Soil application by Phorate G @ 1.0 kg. a.i./ha.
- Mulch helps conserve moisture, promote adventitious root develop. & enhances tolerance to maggot damage;
- Avoid planting beans near cowpea, soybean and many other leguminous crops, that may be the source of bean flies.

Disease Management

Anthracnose :

- Spray Mancozeb 0.25 % or Carbendazim 0.1 % of 2-3 foliar spray at 45, 60, 75 DAS;
- Remove from the field and destroy crop debris after harvest.;
- Practise a 2 to 3 year rotation;
- Avoid overhead irrigation.

Stem Blight:

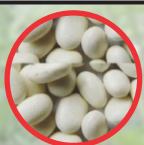
- 2-3 Foliar spary of Benomyl @0.1 % starting at pre bloom or bloom stage;
- Early or timely sowing.;
- Planting in well drained soil;
- Avoid dense planting.

Angular leaf spot:

- Seed treated with carbendazim @2-3 g/Kg. of seeds.;
- 3 Foliar spray (0.1%) starting at the appearance (5-6 weeks after sowing) at 15 days interval;
- Plough under bean debris after harvest.;
- Practise 2-3 year crop rotation without legumes.



White Rajmash



Red Rajmash



Black Rajmash

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