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Original Article**Promoting Kharif Mash for Sustainable Crop Diversification****Seema Sharma¹ and Satwinderjit Kaur²**¹Assistant Professor (Soil Science); KVK, Pathankot²Professor (Soil Science); KVK, Gurdaspur*Corresponding author: seemasharma13@pau.edu

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Pulses, known as the poor man's protein, are important food grains after cereals. Kharif mash is an important pulse crop widely grown in rainfed areas of India because it requires less water and performs well under limited moisture conditions, making it suitable for regions receiving moderate rainfall. It is a rich source of protein and has high nutritive value. Being a leguminous crop, it helps in improving soil properties and fertility through biological nitrogen fixation.

Climate and Soil: Kharif mash performs well during the hot and humid season extending from July to October in Punjab. Mash can be grown on all types of soils but well drained sandy loam to heavy clay soils are ideal for its cultivation. The cultivation of mash contributes to better soil fertility, and the mash-wheat system is ideal for irrigated areas.

Field Preparation: For better crop germination, the field should be ploughed 3-4 times followed by planking to crush the clods and to eradicate the weeds. Proper leveling helps conserve rainwater and ensures uniform germination.

Seed Rate and Time of sowing: The recommended seed rate of 6–8 kg per acre should be used for optimum plant population and better crop yield. The optimum time for sowing irrigated mash crop is from 15th to 25th July in sub-mountainous region and from last week of June to first week of July in other areas of the state. However, in rainfed areas the crop should be sown with the onset of monsoon.

Improved varieties:

For better crop performance and higher productivity, the recommended and improved varieties of kharif mash sown under Punjab conditions are given in Table 1.

Table1: Yield Performance and Characteristics of PAU-Recommended Mash Varieties for Kharif Season

Variety	Days to mature	Average yield (q/acre)	Special features
Mash 883	77	4.2	➤ Seeds are medium bold, black and possess good culinary properties ➤ Resistant to yellow mosaic diseases and tolerant to other foliar diseases
Mash 114	83	3.6	➤ Seeds are bold, black and possess very good culinary properties. ➤ Fairly tolerant to yellow mosaic virus, bacterial leaf spot and leaf spot diseases
Mash 338	90	3.5	➤ Seeds are bold, black and possess very good culinary properties ➤ Tolerant to yellow mosaic virus, bacterial leaf spot and cercospora leaf spot diseases

Method of sowing: The crop should be sown in lines using the kera/pora method or a seed drill, keeping a row spacing of 30 cm and sowing depth of 4–6 cm for better crop establishment and growth.

Seed Inoculation: For obtaining good yield, seed inoculation with recommended *Rhizobium* culture at the time of sowing improves yield and soil health. For one acre, wet the seed with minimum quantity of water, mix the seed thoroughly with one packet of *Rhizobium*. The treated seed should be dried in shade and sown immediately after inoculation. The culture is available with the PAU Seed Shop at Gate No. 1, Krishi Vigyan Kendras and Farm Advisory Service Centres of Punjab Agricultural University.

Weed management: Weeds compete with the crop for nutrients and moisture during early growth period. Weeds can be managed with manual hoeing at one month after sowing which help in keeping the field weed free. Alternatively, Imazethapyr 10 SL @ 300 mL per acre should be sprayed at 15–20 days after sowing for effective control of grassy weeds, broadleaf weeds, and sedges. The recommended quantity of herbicide should be dissolved in 150 litres of water per acre and sprayed uniformly over the crop.

Nutrient Management: Being a legume crop, its fertilizer requirement is very less. For optimum growth and yield, balanced nutrient management is essential. Apply 5 kg N (11 kg urea) along with 10 kg P₂O₅ (60kg single superphosphate) per acre at sowing.

Irrigation and harvesting: The crop generally requires no irrigation but if there are no rains for long period of time then apply one irrigation. Harvest the crop when the leaves are shed and most of the pods turn greyish black. Timely harvesting prevents shattering losses.

CONCLUSION

Mash cultivation provides a valuable option for diversification of existing cropping systems. Due to its low water requirement and high nutritional value, mash is an economical as well as sustainable crop for farmers. Its cultivation can play an important role in addressing the challenges associated with the rice–wheat monoculture while also contributing towards nutritional security.

