

# Resource management in barley

## Research Priorities/Issues

1. To study the effects of various input usage on crop productivity in malt, feed and dual purpose barley.
2. To lower the cost of barley production/cultivation by optimum resource use.
3. To examine effects of irrigation, nutrients, seed, genotypes etc. on yield and other agronomic characteristics.
4. Evaluation of malting and grain quality as affected by resource use under different treatments.

## Zone/State wise Barley Production Technology

Zone/State	Production conditions	Seed rate Kg/ha	Optimum time for sowing	R to R Distance cm	Fertilizer Kg/ha N:P:K
Northern Hill Zone comprising states of Utrakhand, HP, J&K except Jammu area	Rainfed	100	20 October to 07 Nov.	23	40:20:20 Full Basal
North Western Plain Zone comprising states of Punjab, Haryana, Rajesthan, Delhi, Western UP	Irrigated Timely sown	100	01 Nov. to 25 Nov.	23	60:30:20 1/3 N at the time of sowing and 2/3 N after 1st irrigation 80:40:20 (for malt)
	Irrigated Late sown	125	26 Nov. to 30 Dec.	18	60:30:20 1/3 N at the time of sowing and 2/3 N after 1st irrigation
	Rainfed	100	25 October to 10 Nov.	23	30:20:20 Full Basal
North Eastern Plain Zone comprising states of Central and eastern UP, Bihar, Jharkhad, WB, Orissa, parts of MP	Irrigated Timely sown	100	01 Nov. to 25 Nov.	23	60:30:20 1/3 N at the time of sowing and 2/3 N after 1st irrigation
	Irrigated Late sown	125	26 Nov. to 30 Dec.	18	60:30:20

	Rainfed	100	25 October to 10 Nov.	23	30:20:20 Full Basal
Dual Purpose in Plains Mainly in Rajasthan	Irrigated	125	01 Nov. to 25 Nov.	23	75:30:20 1/3 N at the time of sowing and 2/3 N after 1st irrigation
Dual Purpose in Hills	Rainfed	125	20 October to 07 Nov.	23	50:20:20

## Salient investigations of agronomic research on barley in India

- In recent years, research on barley agronomy has been primarily based on specific problem and area approach and the significant findings have been briefly described.
- The productivity of dry land barley may be raised tremendously by providing one life saving irrigation around active tillering stage with water collected from run off during monsoons in small tanks in certain tracts of dry land areas.
- Balanced application of NPK (N 60, P 30, K 20) gave better yields than application of N alone in irrigated conditions.
- Most of the genotypes responded up to 60 kg N/ha under irrigated and 40kg/ha under rainfed conditions.
- The protein content in malt barley genotypes enhanced with the increase in nitrogen levels up to 80kg/ha but within a limit required for brewing purposes.
- Dual purpose barley have tremendous scope in the country. They have definite potential in the North India Gangetic Plains, Hills and even in central India. It fulfills the forage as well as grain requirement. The crop gives 200- 250 q/ha of green fodder in one cut after 55 days of sowing and than 30-35 q/ha of barley grain for feed purpose. Increased seed rate by 25% helps in harvesting more green fodder per ha without reduction in grain yield.
- In NWPZ & NEPZ, one cut at 55 days after sowing is optimum because there is not much reduction in grain yield over cut at 40days. At the same time fodder gain was not enough to compensate the yield reduction at 70 days cut. In Hills, 70 days cut was optimum for green fodder and grain.
- Dual purpose trial under late sown (December sowing) conditions could not found feasible due to very less productivity of feed and fodder.
- The test weight, which is an indicator of better grain filling was highest at 55 days cut closely followed by cut at 40 days. The uncut treatment recorded lower test weight amongst the cutting treatments. Among varieties, RD 2552 has the lowest test weight; the remaining two were at par. Husk percent was higher in uncut barley as compared to cut treatments and it was reduced as the date of cutting increased from 40 to 55 DAS and further increased at 70DAS.
- Row spacing in malt barley can be reduced to 18 cm for higher productivity. This may be because of narrow leaves and erect plant type of 2- row barley.

- Among tillage options, reduced tillage produced as good as conventional tillage and was beneficial in terms of saving of tillage cost.
- In order to reduce use of chemical fertilizer and sustainable production, 5 t FYM + 50 % of chemical fertilizer can be used in barley for same yields.

