

Malt barley research in India and future prospects

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ABSTRACT

Malt barley improvement in India was initiated with several introductions viz. Peatland, Pedigree, Manchuria, Odessa, Clipper, Golden Promise, Midas etc. but these varieties could not popularize due to late maturity, low 1000 grain weight and grain yield (in Indian climate) and mainly due to lack of industrial support/premier prices. Malt barley improvement programme was again re-looked in early nineties and two introductions namely ALFA 93 and BCU73 were released for commercial cultivation in India. Presently, with concerted efforts and research interventions several good malt barley varieties have been released for timely (DWRUB52, DWRB92, DWRB101 etc.) and late sown (DWRB73, DWRUB64 and DWRB91) conditions. These malt barley varieties are having 78-80% malt extract, 100-105oL diastatic power, 63-65 kg/hl hectolitre wt., 10.5-11.5 % protein content. The average grain yield for these two row malt barley varieties have been depicted as 50 q/ha for timely sown and nearly 40 q/ha under late sown conditions with high to moderate resistance for stripe and brown rust and leaf blights. In northern plains of India, barley crop flowers in 85-95 days and harvests in nearly 130-135 days. Therefore, crop grain filling period is very less (35 days) and even the ripening stage coincides with high temperature as terminal heat, which reduces the activities of ADP-glucose pyrophosphorylase (AGPase) and congenial for more accumulation of sulphur poor C hordeins. However, the varieties are performing well for grain yield and different quality parameters viz. hectolitre wt., malt extract, filtration rate, diastatic power etc. The future breeding needs further attention for higher malt extract, diastatic power, better friability, filtration rate and low beta-glucan, husk and protein contents with optimum value of free amino nitrogen. The special emphases are also required for epiheterodendrin (EPH), lipoxigenase (LOX) activity and integration of molecular tools for malt barley genetic enhancement.

SECTION:

Resources II: Germplasm and Populations