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# Evaluation of dual purpose barley varieties under irrigated situation

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***Abstract***

Barley besides providing grain, has anormous potential for fodder and is fast emerging as promising crop for dual purpose. Four varieties of barley were evaluated under irrigated conditions for green fodder and grain production during rabi 2007-08 at Agricultural Research Station, Keshwana, Jalore. Green fodder cut was taken at 48 days after sowing and regenerated crop was managed for grain production. Differences among barley varieties for green fodder yield were found statistically significant. Variety RD-2715 recorded maximum green fodder yield of 229.20 q/ha, which was statistically at par with RD-2552. The lowest fodder production was attained with PL-751 (191.20 q/ha). However, seed yield was maximum in variety RD-2035 (46.20 q/ha) and straw yield in RD-2552 (68 q/ha) in regenerated crop. The gross returns received from green fodder, grain and straw yields were maximum in RD-2715 (64270/ha) followed by RD-2035 (Rs 62640/ha). Therefore, varieties RD-2715 and RD-2035 were found suitable and seem to be promising for the cultivation as dual purpose crop.

**Key words :** Barley, dual purpose, Fodder

## Introduction

Barley is grown during winter season over diverse agro-ecological situations *i.e.,* under irrigated condition in normal soil, saline-alkaline soil and conserved moisture under rainfed situations. The crop is basically cultivated for grain production. The demand of barley is increasing day by day in malt industry for beer, whisky, medicinal syrup, *etc*. (Verma *et al*., 2005). It is also used in the preparation of baby foods and directly as animal feed. The crop has enormous potential for fodder and emerging as promising crop for dual purpose cultivation (Sharma, 1998, 2002).

## Materials and Methods

Four released varieties of barley *viz*., RD-2035, PL-751, RD-2715 and RD-2552 were evaluated at Agricultural Research Station, Keshwana, Jalore under irrigated conditions. Experiment was laid out in randomized block design with four replications. Seed material of all four varieties was received from the Directorate of Wheat Research, Karnal. Sowing was done @ 125 kg/ha on 12.11.2007 in rows at 22.5 cm row distance. A fertilizer dose of 40 kg N and 80 kg P was applied as basal at the time of sowing, 20 kg N at 25 days after sowing and 40 kg N in 2 splits in regenerated crop, first at 7 days after fodder cut and second at 15 days thereafter. Total of six irrigations were applied to the crop.

Green fodder cut was taken at 48 days after sowing at 4-5 cm above the ground level and then regenerated crop was managed for grain production. Yield and yield attributes were recorded and used for statistical analysis. Economic analysis of different barley varieties were made on the basis of prevailing market rate of green fodder, straw and grain.

## Results and Discussion

Differences among barley varieties for green fodder yield were found statistically significant. Maximum green fodder yield of 229.20 q/ha was realized by variety RD-2715, which was statistically at par with RD-2552. The lowest fodder yield was found in PL-751 (191.20 q/ha). The plant height attained by different varieties at 48 days after sowing ranged between 48.75 cm to 64.00 cm and was maximum in RD-2552, which was statistically superior to all other varieties. Number of tillers per running meter was also found maximum in RD-2552 (168 tiller/m), which was statistically at par with RD-2035. Number of seeds per inflorescence, plant height of regenerated crop, leaf length, leaf width, number of leaves per plant, ear length, awn length, 1000 seed weight and biological yield were found maximum in variety RD-2715. However, seed yield was found maximum in variety RD-2035 (46.20 q/ha), which was statistically at par with RD-2715 (43.80 q/ha). Straw yield was maximum in RD-2552, which was statistically

**Table 1: Evaluation of dual purpose barley genotypes**

| Characters | Varieties | | | | Mean | SEm± | CD |
|---|---|---|---|---|---|---|---|
| | RD- 2035 | PL-751 | RD-2715 | RD-2552 | | | (p=0.05) |
| **at 48 days after sowing** | | | | | | | |
| Plant height (cm) | 59.75 | 48.75 | 57.25 | 64.00 | 57.44 | 0.80 | 2.48 |
| Green fodder (q/ha) | 197.50 | 191.20 | 229.20 | 217.20 | 208.80 | 9.5 | 29.40 |
| **Yield and ancillary characters in regenerated crop** | | | | | | | |
| Tillers per running meter | 158.00 | 130.00 | 130.00 | 168.00 | 146.76 | 5.47 | 18.85 |
| Seeds/inflorescence | 60.00 | 56.00 | 66.00 | 57.00 | 59.79 | 2.29 | 7.05 |
| Plant height (cm) | 85.50 | 75.33 | 87.67 | 80.45 | 82.24 | 2.23 | 6.88 |
| Leaf length (cm) | 20.28 | 19.75 | 20.64 | 17.31 | 19.49 | 0.71 | 2.20 |
| Leaf width (cm) | 1.65 | 1.98 | 2.25 | 1.66 | 1.88 | 0.05 | 0.16 |
| Leaves/plant | 5.50 | 5.14 | 5.56 | 5.28 | 5.37 | 0.22 | NS |
| Awn length (cm) | 11.56 | 12.39 | 13.05 | 11.39 | 12.10 | 0.36 | 1.10 |
| Ear length (cm) | 8.47 | 8.64 | 10.22 | 7.11 | 8.61 | 0.35 | 1.07 |
| No. of florets/ inflorescence | 20.89 | 19.28 | 20.56 | 18.11 | 19.71 | 0.83 | 2.57 |
| Biological yield (q/ha) | 106.30 | 86.30 | 107.30 | 101.80 | 100.80 | 4.60 | 14.10 |
| Grain yield (q/ha) | 46.20 | 35.60 | 43.80 | 32.60 | 39.90 | 2.50 | 7.70 |
| Straw yield (q/ha) | 59.30 | 53.80 | 63.10 | 68.00 | 60.90 | 3.50 | 10.80 |
| 1000 seed wt. (g) | 44.60 | 40.80 | 47.00 | 40.70 | 43.20 | 1.54 | 4.74 |
| Gross returns from green fodder, grain and straw (Rs/ha) | 62640.00 | 52980.00 | 64270.00 | 54600.00 | 58890.00 | - | - |

Selling rates: green fodder @ Rs. 100/q; Straw @ Rs. 100/q and grain @ Rs. 800/q

at par with RD-2715 and RD-2035 (Table 1). Verma *et al* (2007) reported the average yield of dual purpose barley varieties for green fodder at 50-55 days after sowing (229.00 q/ha) and grain yield of regenerated crop (25.70 q/ha) in north-west and central India. In another study conducted at ARS, Jalore, suitable sowing time for fodder barley was found 15$^{th}$ October (Sharma, 2007) and optimum seed rate for fodder cultivation as 125 kg/ha (Sharma, 2006).

In present study, the gross returns received from green fodder, grain and straw yield were found maximum in variety RD-2715 (Rs 64270 per hectare) followed by RD-2035 (Rs 62640 per hectare). Minimum gross returns were received from variety PL-751. Therefore, variety RD-2715 and RD-2035 were found suitable and seem to be promising for the cultivation as dual purpose crop.

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