

RELATIVE PERFORMANCE OF DUAL PURPOSE OAT AND BARLEY GENOTYPES FOR GREEN FODDER AND SEED YIELD IN ARID RAJASTHAN

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(Received : 07 December, 2015; Accepted : 28 December 2015)

DEX Abstract
3/3/16

SUMMARY

Sixteen genotypes of barley and eight genotypes of oat were evaluated for green fodder and seed yield during rabi 2012-13 at Agricultural Research Station, Keshwana, Jalore (Rajasthan). Green fodder yield of oat genotypes ranged between 56.00 and 130.33 q/ha with the average of 94.28 q/ha; however, in barley it varied between 119.50 and 238.50 q/ha with the average of 178.70 q/ha at 53 days after sowing. The seed yield of regenerated oat varied between 6.98 and 20.57 q/ha with the average yield of 14.50 q/ha; and in barley it ranged between 19.79 and 47.43 q/ha with the average of 31.29 q/ha. This high degree of variability among genotypes of oat and barley revealed a good scope of selection. Genotypes OS-387, JO-09-504, JHO-2012-5, JHO-822 and UPO-212 of oat and RD-2035, BH-971, Azad, UPB-1035, UPB-1036, UPB-1034, RD-2715 and RD-2552 of barley appeared relatively better for green fodder and seed yield in dual purpose cultivation. Relative performance of these two species revealed that plant height and green fodder yield of fresh crop and seed yield of regenerated crop were higher in barley; however, plant height and biological yield of regenerated crop were found higher in oat. Total income received from green fodder, seed and straw yield of barley was Rs. 104262.00/ha, whereas it was Rs. 81710.00 in oat. Therefore, cultivation of dual purpose barley was found more profitable than oat in arid Rajasthan.

Key words : Barley, dual purpose, genotypes, green fodder, oat, seed yield, varieties

Oat (*Avena sativa* L.) and barley (*Hordeum vulgare* L.) are important dual purpose cereals cultivated for animal fodder and grain production. These crops are grown during winter season in north-western and central India and are now extending to the eastern region also. Barley is mainly cultivated for grain which is consumed as feed and raw material in beverage industries. It is also grown as fodder for animals (Verma *et al.*, 2005; Sharma, 2002, 2007). Oat is mainly cultivated as fodder for animals and also for grain because of its high nutritional and medicinal value. The use of its grain is now more focused on mining its benefits as a health food. The importance of oats in the biochemical and cosmetic industry is also on the rise (Tiwari and Cummins, 2009). Oat production has continuously decreased, whereas the demand of oat as a human food has increased because of its dietary benefits of the whole grain and β -glucan content (Buerstmayr *et al.*, 2007). Oat is now being preferred as a "functional food" as it is rich source of

fibres and also has antioxidant properties (Nirmalakumari *et al.*, 2013).

Looking to the situation of fragmented and small land holdings, efforts are going on to develop high yielding varieties for dual purpose cultivation (Singhal *et al.*, 2008) so that farmer can get green fodder and food grain from the same crop in the same season. Oat and barley have excellent growth, biomass production and quick regeneration after cutting. The potential of both the crops has been recognized for dual purpose cultivation, where regenerated crop is managed for seed production after first fodder cut. Therefore, selection of suitable varieties attains a paramount importance in harnessing the higher fodder and seed yield. Oat and barley improvement programme in India is successfully developing commercial varieties for dual purpose cultivation in different agro-ecological situations. Present experiments were conducted with the objective to test the potential of oat and barley genotypes for better