Dual Purpose oat (*Avena sativa* L.)

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Oat (*Avena sativa* L.) is generally grown in India for fodder purposes. But of late, its importance as grain has been felt and efforts are now being made to develop oat varieties which could give high fodder yield as well as grain yield from the same crop. This is termed as dual purpose oat. In the present investigation, efforts have been made to evaluate some genotypes of oat (*Avena sativa* L.) for fodder as well as grain yield. However, Jhorar and Arora (2005) and Arora et al (2010) have made some studies on fodder and grain yield in dual purpose barley.

An experiment named as Large Scale Trial (Dual purpose) comprising of thirteen genotypes was evaluated against three check cultivars namely; Kent, HJ 8 and UPO 212 (Table 1) in the Forage Section, Department of Genetics & Plant Breeding, CCS Haryana Agricultural University, Hisar, India. The experiment was planted on October 29, 2012 in Randomized Complete Block Design with three replications having plot size of 3x4 m^2 with the spacing of 25 cm between rows. The crop was harvested for taking green fodder after 55-60 days of sowing and then the crop was left for re-growth and regeneration. At maturity, the crop was harvested for harnessing the seed production. The data thus obtained on fodder and seed yield was statistically analyzed. The results of the present investigation are given here under:

Significant differences among genotypes were observed for both Green Fodder Yield (GFY) and Dry Matter Yield (DMY) at fodder harvest. Results presented in Table 1, revealed that genotype OS 419 (194.37 q/ha) was numerically higher in GFY to the best check HJ 8 (183.26 q/ha), whereas for DMY, genotype OS 409 (25.27 q/ha) was significantly higher than the best check UPO 212 (18.99 q/ha). However, results of the grain yield harvested from the re-growth and regenerated crop after taking the first harvest of green fodder revealed significant genotypic differences for grain yield however, non-significant genotypic differences were observed for biological yield. Data presented in Table 1 further revealed that, none of the genotypes was better in grain yield than the best check UPO 212 (30.68 q/ha). For biological yield four genotypes namely; OS 346 & HFO 24 (163.82 q/ha), HFO 371 (158.27 q/ha) and OS 419 (155.49 q/ha) were numerically superior to the best check Kent and UPO 212 (144.39 q/ha). Highest harvest index was recorded for the check cultivar UPO 212 (21.25 %), which was very close to the genotype OS 376 having HI 21.20%. Critical analysis of the results further revealed that in general high fodder yielding genotypes were not high seed yielding types. It is obvious that they have been bred for high fodder types, not for high seed yielding types. So, some sort of compromise has to be made while going for dual type oats. Therefore, genotypes like UPO 212, Kent, OS 419, OS 421 and OS 376 can be exploited as dual purpose oat.

References

Arora, R.N., B.S. Jhorar and S.S. Bisht. 2010. Genetic variability and path analysis for fodder and grain yield in dual purpose barley. Forage Res., 36(1): 26-31

Jhorar, B.S. and R.N. Arora. 2005. Dual-purpose barley. National Symposium on "Advances in Forage Research and Sustainable Animal Production" August 29-30, 2005, CCS HAU, Hisar. Pp. 101.

Table 4: Mean performance of oat genotypes in LST (Dual) for fodder yield, seed yield & biological yield

Sr. No.	Genotypes	Green Fodder Yield (q/ha)	Rank	Dry Matter Yield (q/ha)	Rank	Seed Yield (q/ha)	Rank	Biological Yield (q/ha)	Rank	Harvest Index (%)
1	OS 346	161.05		**19.33**	**3**	19.71		**163.82**	**1**	12.03
2	OS 376	149.94		12.00		28.85	2	136.06		**21.20**
3	OS 387	122.17		9.77		18.99		152.72		12.44
4	OS 406	177.71		17.77		20.55		130.50		15.74
5	OS 409	180.48		**25.27***	**1**	21.10		149.94		14.07
6	OS 414	149.94		14.99		19.02		138.83		13.70
7	OS 417	152.72		15.27		20.49		152.72		13.42
8	OS 419	**194.37**	**1**	15.55		20.30		**155.49**	**3**	13.05
9	OS 421	152.72		**21.38**	**2**	26.91	3	152.72		17.62
10	HFO 24	136.06		13.61		25.55		**163.82**	**1**	15.59
11	HFO 69	149.94		17.99		25.35		136.06		18.63
12	HFO 371	144.39		17.33		25.57		**158.27**	**2**	16.16
13	HFO 427	130.50		15.66		26.74		149.94		17.83
14	Kent (Check)	152.72		15.27		26.71		**144.39√**		18.50
15	HJ 8 (Check)	**183.26√**	**2**	18.33		16.83		141.61		11.88
16	UPO 212 (Check)	158.27		**18.99√**	**4**	**30.68√**	**1**	**144.39√**		**21.25**
	Mean	**156.01**		**16.78**		**23.33**		**148.20**		**15.82**
	SEm±	**8.94**		**0.94**		**1.41**		**7.25**		
	CD at 5%	**25.06**		**2.73**		**4.08**		**NS**		
	CV (%)	**9.58**		**9.7**		**10.44**		**8.47**		

√–Best Check; *Significantly better than the best check.