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SHORT CUMMUNICATION

EFFECT OF SOWING DATES AND INITIAL PERIOD OF CUTTING ON SEED PRODUCTION OF OATS (*AVENA SATIVA* L.)

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SUMMARY

A field experiment was conducted during **rabi** 2010-11 at Research Farm of Department of Agronomy, Forages and Grassland Management, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur to study the effect of sowing dates and initial period of cutting on seed yield of oat (*Avena sativa* L.). Sowing of crop on 15th October recorded highest seed and straw yield than that of 30th October and 14th November. Variety Palampur-1 registered highest seed and straw yield. The initial cutting at 60 days after sowing recorded significantly highest seed (1160 kg/ha) and straw (3531kg/ha) yield over the initial cutting at 75 and 90 days after sowing (DAS).

Key words : Sowing dates, initial cutting, seed production, oat

Oat (*Avena sativa* L.) is a crop which can suitably be introduced in areas with limited irrigation facilities. It is known to produce high yields of nutritive forage. The oat crop is known to have high yielding potential and multicut ability. There is possibility of utilizing the regrowth and its yield potential both for forage production and as seed production making it a dual purpose crop. Unlike berseem the seed production is not the problem with this crop, because the seed crop is ready before the onset of monsoon. Generally farmers leave the crop for seed production after taking one cut for forage. Thus, in the former case he has to forego the forage yield and in the later case he gets poor seed yield. So, in order to get higher forage and seed yield simultaneously, its initial period of harvest is required to be worked out. The time of sowing and suitable variety is another important factor which need specific attention for such crop management. Keeping these points in view, the experiment was taken up to find out the optimum date of sowing and period of initial cutting for higher seed production of promising varieties.

A field experiment was conducted during **rabi** 2010-11 at Research Farm of Department of Agronomy, Forages and Grassland Management, CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur. The experiment was laid out in split plot design with three replications. The main plot consisted of three different dates of sowing (15th October, 30th October and 14th November) and two varieties (Palampur-1 and JHO 99-2), whereas sub-plot had three initial periods of cutting (60, 75 and 90 DAS). The soil of the experimental field was silty clay loam in texture, having pH 5.3, organic carbon 1.10 per cent, available nitrogen 323.4 kg/ha, available P 323.4 kg/ha and available K 276.4 kg/ha. The healthy seeds of variety Palampur-1 and JHO 99-2 as per the treatment were sown at the rate of 100 kg/ha in rows 25 cm apart by *Kera* method. The first, second and third sowings were done on October 15, October 30 and November 14, respectively. Half of the nitrogen (40 kg N/ha), 60 kg P_2O_5 and 40 kg K_2O/ha were applied at the time of sowing. The remaining half of the nitrogen was applied after respective cutting stages for forage production. Urea (46% N), single super phosphate (16% P_2O_5) and muriate of potash (60% K_2O) were used as a source for nitrogen, phosphorus and potash, respectively.

Effect of Date of Sowing

A critical observation of data (Table 1) revealed that seed yield (1184 kg/ha) and straw yield (3232 kg/ha) of oat were significantly influenced by the date of sowing. The data clearly indicated a significant reduction in seed yield with successive delay in sowing. 15th October sown crop registered significantly higher seed

TABLE 1
Effect of different treatments on seed and straw yield

Treatment	Seed yield (kg/ha)	Straw yield (kg/ha)
A. Dates of sowing		
15th October	1184	3232
30th October	952	2923
14th November	730	2502
C. D. (P=0.05)	95.72	300
B. Varieties		
Palampur-1	1018	3086
JHO 99-2	893	2685
C. D. (P=0.05)	78.16	245
C. Initial periods of cutting		
60 DAS	1160	3531
75 DAS	974	2933
90 DAS	733	2192
C. D. (P=0.05)	35.89	111

yield over 30th October and 14th November sowing and this increase was 24.3 and 62.4 per cent, respectively. The corresponding increase in straw yield was 10.6 and 29.2 per cent. The higher seed and straw yield from early sowing may be attributed to sufficient time available for the successful completion of both vegetative as well as reproductive phases of crop under the conducive environment conditions. The decrease in yield with delayed sowing may be explained through the data on various seed yield contributing characters such as number of panicles per metre row length, number of seeds per panicle and 1000-seed weight (Table 2), which were significantly influenced by different sowing dates. The early sowing (15th October) produced significantly more number of panicles per metre row length, higher panicle length, more number of seeds per panicle and 1000-seed weight over other sowing dates (30th October and 14th November). Cumulative effect of various yield contributing characters got culminated in higher seed and straw yield in the early sowing date. Gooding and Lafever (1991) and Singh *et al.* (1993) also recorded similar results.

Effect of Varieties

Variety Palampur-1 recorded significantly higher seed and straw yield over the variety JHO 99-2. The higher seed and straw yield and comparatively better performance of variety Palampur-1 over variety JHO 99-2 could be ascribed to its better performance in yield contributing characters such as number of productive tillers, panicle length, number of seeds per panicle and 1000-seed weight (Table 2). These findings are in conformity with the findings of Singh *et al.* (1998).

Effect of Initial Period of Cutting

Initial cutting at 60 days after sowing and then left for seed production recorded significantly higher seed yield over initial cut taken at 75 and 90 DAS. Initial period of cutting at 60 DAS produced maximum and significantly more number of panicles per metre row length, higher number of seeds per panicle and higher 1000-seed weight compared to initial period of cutting at 75 and 90 DAS which reflected in higher seed yield.

TABLE 2
Effect of different treatments on seed yield contributing characters

Treatment	No. of panicles/m row length	Panicle length (cm)	No. of seeds/ panicle	1000-seed weight (g)
A. Dates of sowing				
15th October	56.4	29.0	47.9	39.3
30th October	51.2	25.6	42.3	37.1
14th November	42.7	21.7	34.9	33.3
C. D. (P=0.05)	1.4	1.2	2.4	1.3
B. Varieties				
Palampur-1	52.6	26.1	45.3	37.6
JHO 99-2	47.7	24.6	38.1	35.6
C. D. (P=0.05)	1.2	1.0	1.9	1.0
C. Initial periods of cutting				
60 DAS	56.3	30.6	46.9	38.9
75 DAS	50.8	25.5	41.7	36.5
90 DAS	43.2	20.3	36.4	34.2
C. D. (P=0.05)	1.0	3.8	1.9	0.8

Similar results were also reported by Sharma and Bhunia (2001). Initial cutting at 60 DAS and then left for seed production recorded significantly higher straw yield over initial cut at 75 and 90 DAS. The lower straw yield from the oat initially harvested at 75 and 90 DAS may be due to poor regrowth/regeneration resulting in lower straw production.

CONCLUSION

Sowing of oat variety Palampur-1 on 15th October with initial period of cutting at 60 DAS proved to be the best for higher seed production.

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