An investigation on ecological aspects of crested and intermediate wheat grasses in semi-steppe vegetation of Iran

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Keywords: *Agropyron cristatum*, *Thinopyrum intermedium*, chemical composition, phenological stages, Golestan National Park

Introduction Crested and intermediate wheat grasses (*Agropyron cristatum* (L.)Gaertn., *Thinopyrum intermedium* (H.)Beauv.) are adapted to relatively dry conditions in Iran and have a significant role in providing good forage quality for domestic sheep and wild ungulates in summer rangelands. These grasses occur at altitudes of 1,200 to 1,800 m. *A. cristatum* is a bunch grass with diverse spikes and medium height (40 cm) and is common on open and exposed knolls, whereas *T. intermedium*, with height of 115 cm and with long rhizomes, is found in more moist niches in gully bottoms. The objectives of this study were to determine forage values, canopy coverage, production, local distribution, and phenological stages of these species in Golestan National Park, which is representative of the semi-steppe zone in Iran.

Material and methods Phenological stages, canopy coverage and production of two species of *A. cristatum* and *T. intermedium* were recorded at representative sites. The foliage of ten plants of each species were harvested at three stages of vegetative growth (VG), full flower (FF) and seed ripening (SR) and analysed for nitrogen (N) and acid detergent fibre (ADF). Crude protein (CP), dry matter digestibility (DMD) and metabolisable energy (MED) were then calculated using the following prediction equations:
%N=0.16CP, %DMD=83.58-0.824ADF+2.626%N, and MED=0.17%DMD-2 (Standing Committee on Agriculture, 1990). Statistical analysis was by ANOVA.

Results The phenological stages, cover, production and chemical composition of the species are shown in Figure 1 and Table1.

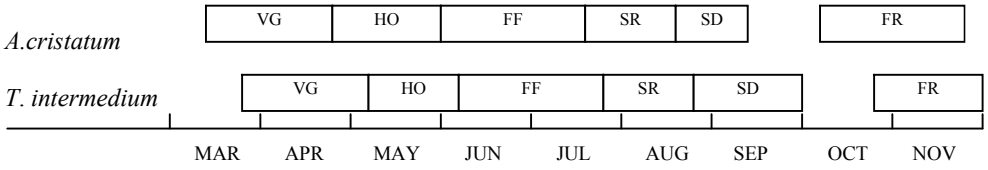

Figure 1 Phenological stages of *A. cristatum* and *T. intermedium*. VG=Vegetative growth, HO=Heads out, FF=Full flower, SR=Seed ripening, SD=Seed dissemination, FR=Full regrowth

Table 1 Canopy cover (%), production and chemical composition of *A.* cristatum and *T. intermdium*

Species	Cover (%)	Production (kg/ha)	Chemical composition (%)			
			Crude protein		Acid detergent fibre	
			Mean	StDev	Mean	StDev
A. cristatum	5	180	9.8	2.6	42.8	3.9
T. intermedium	8	200	9.5	2.6	45.1	5.9

There were significant differences between stages for chemical composition of both species ($p<0.05$), but there were not any differences between the species ($p>0.05$). With advance in maturity, CP decreased and ADF increased. Additional information was obtained on the number of flowering stalks, seeds per spike, seed germination and distribution of these species, but this is not presented here.

Conclusion Although the contribution of these two species was relatively small in relation to production and forage quality of rangelands in the study area, there is need for further work on a larger scale.

References

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