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## The agronomic characteristics of *Agropyron* spp . germplasm in semi-steppe region of Iran

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**Key words :** *Agropyron* , phenological stages , plant conservation

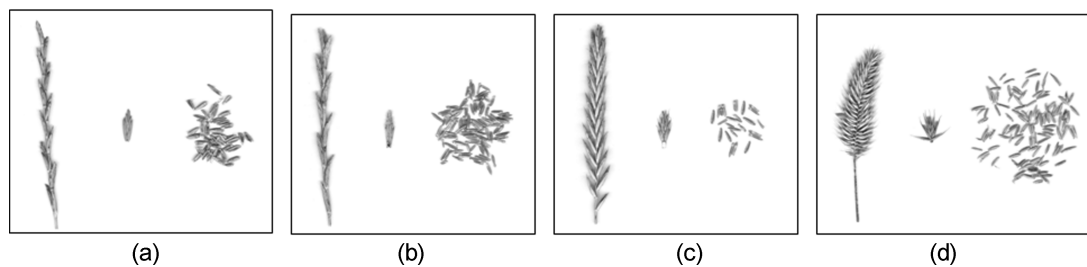
**Introduction** Golestan National Park with an area of about 100 ,000 hectares is representative of semi-steppe vegetation of Iran (Pabot , 1967) . This park has been protected from grazing for 40 years and can be considered as an invaluable genetic pool of important plant species which are rarely sighted outside the Park . There is a need to characterize the germplasm of *Agropyron* species due to the high possibility of finding more biotic and abiotic stress tolerance . Most of the *Agropyron* spp . are common on open and exposed knolls and originate from central Asia , including parts of Iran , Turkey , Afghanistan , Russia , and China (Bor , 1970) . The main objectives of the research are (1) to find populations resistant to drought and grazing ; (2) to record phenological stages ; (3) to find the germination percentages of different ecotypes ; and (4) to select seeds of the plants with the highest yield .

**Methods and materials** The park is located east of the Caspian Sea , between 55°43' to 56°17' E and 37°16' to 37°31' N with a mean annual precipitation of 185 mm and an average temperature of 12 .7 C° . The altitude of collections ranged from 1500 to 2000 m in hilly terrain , including species of *Agropyron cristatum* , *Agropyron trichophorum* *Thinopyrom intermedium* , and *Agropyron* spp . This study reports on seed collections and some morphological characterization . The second part of the research being completed includes tissue culturing and germination studies . The habitats of *Agropyron* spp . were visited periodically to record phenological stages and height of plants approximately every 15-days . At the seed ripening stage , the spikes of vigorous plants were harvested for viable seeds and number of seed/spike and weight of 100 seeds were measured .

**Results** The preliminary results of seed characteristics are shown in Table 1 and Figure 1 .

**Table 1** Morphological , phenological , and seed characteristics of these species from Golestan National Park .

| Collected Species             | Plant height (cm) | Length of spike (cm) | Flowering date | Seeds/spike | 100 seed weight (g) |
|-------------------------------|-------------------|----------------------|----------------|-------------|---------------------|
| <i>Agropyron cristatum</i>    | 42-57             | 5 .43                | June-July      | 24 .5       | 0 .166              |
| <i>Agropyron trichophorum</i> | 49-60             | 10 .04               | June-July      | 9 .0        | 0 .236              |
| <i>Thinopyrom intermedium</i> | 47-78             | 10 .70               | June-July      | 7 .0        | 0 .180              |
| <i>Agropyron</i> spp .        | 55-65             | 5 .65                | June-July      | 2 .0        | 0 .042              |



**Figure 3** Typical spike , spikelet and seeds of (a) *Agropyron trichophorum* , (b) *Thinopyrom intermedium* (c) *Agropyron* spp . , (d) *Agropyron cristatum* at Golestan National Park .

**Conclusion** As far as these native grasses have evolved in concurrence with other biota in protected areas , they are the basis for range reseeding in degraded areas .

### Reference

Pabot , H . 1967 . Pasture development and improvement through botanical and ecological studies . FAO No . 2311 .