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## A study of forage germplasm resources and their utilization in Heilongjiang province China

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**Key words :** Heilongjiang , forage , germplasm , resource , utilization

Heilongjiang Province has 4.33 million hectares of grassland of which the Sanjiang grassland is 0.665 million hectares , the grass mountain and grass slope is 1.8 million hectares , and the western grassland is 1.865 million hectares , the most importance part of the Songnen grassland . Because of the differences of ecologic environment there are abundant cold tolerant , anti-alkali tolerant , drought and barren tolerant species and biotypes . Identifying germplasm resources and their scientific utilization is necessary not only for the development of animal husbandry , but also for control of the environment .

**Forage germplasm resource composition** The continuity of the Daxinganling , Xiaoxinganling , and Zhangguangcailing mountains , whose peaks rise and fall along the skyline are natural woodland and these mountain ranges resemble a horse's hoof that encircles the Songnen plain , with interleaving forest and grasslands , temperate zones and cold temperate zones . Therefore , there are three types of plant flora in this area : Mongolia , Changbai and Xingan . In this complicated area , about 2100 species are distributed , and about 1000 of them have an economic value According to investigations there were 11 families , 227 genera , and 796 species . .

### Utilization and researching of germplasm resources

**Domestication of wild species** *Leymus chinensis* (Trin.) Tzvel were domesticated in the 1960s and *Melissitus ruthenicus* C.W. Chang in the 1970's . They were registered by the Chinese Herbage Cultivar Registration in 1988 .

**Native species and the new species** *Medicago sativa* L in Zhaodong adopted a protection and grow measure , becoming with cold tolerant , drought tolerant for the native species registered in 1989<sup>[1]</sup> .

The diploid *Melissitus ruthenicuse* C.W. Chang crossing with traploid *Medicago sativa* L cv . zhaodong which was successfully bred<sup>[3]</sup> using of the artificial inducing method with the <sup>60</sup>Co-rwhich increased seed matur of *Astraglus adsurgens* Pall in Heilongjiang .

**Introduced varieties** The best foreign *Medicago* species is *Medicago varia* Martin .cv . Rambler , and the better domestic *Medicago* species are the Caoyuan No 1 and No 2 , the Gongnong No1 and 2 . The grasses are *Elymus dahuricus* Turcz , *Elymus sibericus* L . , *Broumus inermis* Leyss , and *Agropyron mongolicum* . Keng , *Agropyron cristatum* ( L . ) Gaertn , *Agropyron cristatum* ( Linn . ) var . pectiniforme ( Roem . et Schult . ) H . L . Yang , *Agropyron trachycaulum* etc .

**Utilization and exploitation of forage germplasm resources** The collection , utilization and breeding of forage germplasm . Wild forage domestication for cultivation and their characteristics . Breeding of high yield , superior quality , cold tolerant varieties . The selection of drought tolerant , barren tolerant varieties . The selection of salt-alkali tolerant species .

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