



## **BROMUS STUDY**

### ***POACEAE***

For the Canadian Seed Analysts, the ones to be concerned about are the weeds: *Bromus diandrus*, *B. hordeaceus*, *B. secalinus* and *B. tectorum* and the crops: *Bromus inermis*, *B. carinatus* and *B. riparius*. The rest are here as you may run into them during your seed testing.

### **Weeds**

#### ***Bromus arvensis* L. Field Brome**

Color Brown. Lemma Folded, widest 2/3 from base. Palea is papery with long bristles on margins. Awn, rachilla with scar same width. Surface Texture Smooth. Seed Type Floret. Floret similar to *Bromus japonicus* except its lemma and caryopsis is more strongly laterally compressed and the lemma and palea are nearly the same length.





***Bromus catharticus* Vahl    Rescue Grass (Rescue Brome, Prairie Grass, Grazing Brome)**

Color Brown. Lemma is long pointed and laterally folded. Strong longitudinal nerves. No awns. Palea is obscure by being folded into caryopsis. Rachilla scar is not parallel with rachilla axis. Surface texture is glabrous and smooth, sometimes sparse and short hairs. Seed Type Floret. *Bromus catharticus* is strongly folded laterally. It can be distinguished from *Bromus marginatus* by being thicker and by having more conspicuous longitudinal nerves on the lemma. Floret is laterally compressed.



5mm



1cm



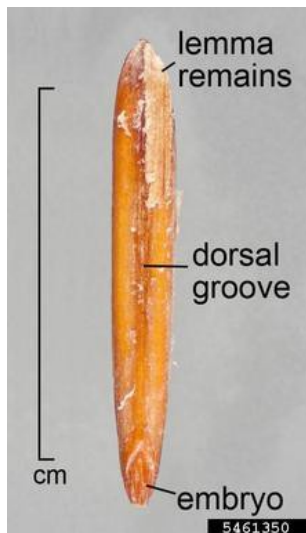
***Bromus commutatus* Schrad. Hairy Brome (Hairy Chess, Meadow Brome)**

Color Brown. Lemma Stiff, broad, and is usually enrolled obscuring much of the palea. Palea Thin, flat and long hairs on margins. Flat awn. Rachilla wider at apex than at base. Surface Texture Smooth and glabrous. Seed Type Floret. Caryopsis thin and flat.



***Bromus diandrus* Roth (*Bromus rigidus* Roth) Ripgut Brome (Giant Brome)**

Color Brown, base dark brown becoming lighter toward apex. Lemma Apex bifid; nerves evident but not ridged. Palea Hairs on margins short, course, and wide spaced. Awn arises from lemma. The rachilla is long. The callus has a rounded point. Surface Texture Short hispid hairs on lemma. Hairs on callus. Seed Type Floret. Awn 1-2 time longer than lemma. Caryopsis is thin and long.





***Bromus japonicus* Houtt Japanese Brome (Japanese Chess)**

Color Brown, light. Lemma is much wider than caryopsis and strongly involute. Palea is much shorter than lemma and margins have long teeth. Awn near tip of lemma. Rachilla scar and width are uniform. Surface Texture Smooth. Seed Type Floret. The caryopsis is short and reaches the length of the palea but not the lemma.





***Bromus hordeaceus* L. Soft Chess**

Color Brown. Lemma is slightly enrolled and adheres to the caryopsis. Palea has long margin teeth. Adheres to the caryopsis. Awn at apex of lemma. Rachilla is wider at apex than at base. Surface Texture Hair at upper portion of the lemma; wrinkled. Seed Type Floret. The lemma and palea appear glued to the caryopsis producing a wrinkled effect on their surfaces. The brown color of the caryopsis is then visible through the outer coverings.







***Bromus secalinus* L. Cheat (Chess)**

Color Brown, dark. Palea is same length as lemma; keel hairs hispid. Short awn on lemma apex. Rachilla bowed with large scar. Surface Texture Smooth. Seed Type Floret. The caryopsis is about the same length as the lemma and palea. It is also thick and deeply indented longitudinally.





***Bromus tectorum* L. Downy Brome (called Cheatgrass in USA)**

Color Brown, dark. Lemma Slightly wider than caryopsis; strong central vein. Palea partially infolded in lemma; margins with long fine teeth. Long awn and rachilla. Surface Texture Lemma copiously soft-pubescent. Seed Type Floret. Most florets are bowed. The apex of the lemma has two hyaline teeth which are located on either side of the awn.





***Vulpia myuros* (L.) C. C. Gmel. Rat Tail Fescue (Fox tail Fescue)**

Color Brown. Lemma Margins enrolled with long slender awn. Palea Keels nearly covered by lemma; deep cavity. Long awn, lateral groove above callus. Surface Texture Top third of lemma sparsely scabrous; palea keels with short teeth. Seed Type Floret. The floret is long and narrow with a long and slender awn. The palea is mostly concealed by the enrolled lemma but nearly the same length as the lemma excluding awn. The caryopsis is long and dark brown.



## Crops

### *Bromus carinatus* Hook & Arn. (Sweet Bromegrass)

Color Brown, light. Lemma is strongly laterally compressed. Nerves do not form ridges. Palea is obscured by compressed lemma. Rachilla is granular or hispid. Surface texture is smooth and sparsely appressed pubescence. Minutely hispid. Seed Type Floret. This laterally compressed species is similar to *B. catharticus* but less thick and longitudinal nerves less conspicuous. Long, flat, light weight; lemma frayed at tip, veined, rounded back, awnless. Seeds are 10-15 mm long, 2-3 mm wide.





***Bromus inermis* Leyss. Bromegrass (Smooth Brome, Awnless Brome, Smooth Bromegrass)**

Color Brown. Lemma is flat, papery and near transparent at edges. Palea is flat, papery and strong central nerve. Margins with many fine hairs. Long, thin rachilla with scabrous hairs. Surface Texture Smooth and wrinkled. Seed Type Floret. Caryopsis is dark brown and can be seen through the lemma and palea. *B. inermis* differs from *B. biebersteinii* by having many fine hairs on its palea margins rather than bristles.





***Bromus riparius* Rehmann (= *Bromus biebersteinii*) Meadow Bromegrass**

Color Brown. Lemma Flat, widest 2/3 from the base. Palea Flat, margins have strong uniformly spaced teeth. Rachilla, hairy. Surface Texture Smooth and papery. Seed Type Floret. Double florets are often found. This species can be confused with *B. inermis*. However *B. inermis* has weak and numerous palea margin teeth whereas *B. biebersteinii* has strong uniformly spaced teeth.



