

BROMUS STERILIS – BROMUS SP.

Barren brome and other brome grasses

Scientific name: *Bromus sterilis* – Bromus sp.

English name: Barren brome
 French name: Brome stérile
 et autres bromes
 German name: Taube frespe
 Spanish name: Bromo

Italian name: Forasacco rosso
 Danish name: Gold hejre
 Dutch name: Ijle dravik, Schrale
 Slovene name: Jalova stoklasa

INCREASINGLY COMMON GRASSES

There are about twenty different species of brome grasses that coexist in crops and vineyards. The vast majority are annuals. Although it is relatively easy to identify a seedling of the genus *Bromus* (leaves and sheaths very hairy), the different species can only be identified after bloom by closely examining the **mature caryopses** (seeds).

Brome grasses are described as **ruderal species**, or plants in field margins that colonize fields due to no-till (reduced or minimum tillage).

One species of brome, namely meadow brome (*B. commutatus*), is proliferating rapidly in crops. It is a forage brome and may become difficult to control in the future.



Figure 1 - Meadow brome - inflorescence © Adeux



Figure 2 - Soft brome - inflorescence



Figure 3 - Leaf hairs - ligule

BOTANY – ECOLOGY

Family: Poaceae (grasses)

Life cycle: annual plant (therophyte). Its persistence and survival in fields is thus linked exclusively to seed production and seedbank in the soil.

Germination: autumn, winter, spring. The plant first forms a rosette with numerous tillers before growing as tall as 80-100 cm.

Favourable environment: found in cultivated fields, fallow land and disturbed environments and on numerous soil types. Prefers calcareous soils with low water reserves.

Botanical characteristics: grass with **convolute vernation** (leaves rolled in the bud). Light green color. Blade long and twisted. The leaves are soft and very hairy. **Auricle absent**. Denticulate **ligule**.

Bloom: May to August. Inflorescence loose with long, pendulous branches after bloom. Inflorescence green or purple in color. Ca. 1500 seeds produced per plant.

Seed: large (3 to 5 cm), multifloral, scabrous spikelet. Caryopsis with a long awn. Short period of viability (< 3 years) in the soil.



Figure 4 - Spikelet



Figure 5 - Seed - caryopsis

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WHAT ACCOUNTS FOR THEIR PRESENCE IN NO-TILL?

The biology of brome grasses enables them to adapt very well to minimum- or no-till. The seeds can germinate on the soil surface and they grow fast after sowing. In addition, early sowing dates favour the growth of annual brome grasses in fields. Brome grasses spread into fields from the edges. Combines play a key role in their dispersal.

CONTROL

Because of their dense growth, brome grasses reduce yields and adversely impact harvest quality in grains. Working the soil has always been a key tool in brome grass control. The combined practices of working the soil and disking the field edges to eliminate seed production have almost relegated herbicide control to a secondary measure. The chemical control of brome grasses is based almost exclusively on the ALS inhibitor class of herbicides (pyroxulam, sulfosulfuron). It has been noted that split applications improve herbicide efficacy. However, the risks of resistance development are significant and crop rotation can reduce brome grass populations in fields. Lastly, it is essential to avoid seed dispersal by combines during harvest.

HERBICIDE RESISTANCE

Some cases of herbicide resistance have been noted in Northeastern France. The herbicides concerned are acetolactate synthase (ALS) inhibitors (sulfosulfuron, iodosulfuron + mesosulfuron, propoxycarbazone, etc.). The resistance is partially linked to a mutation of the target site.

RISK OF CONFUSION

Because of their hairiness, brome grasses in the vegetative stage may be confused with other grasses such as the velvet grasses. More common on acid soils, velvet grasses are perennial, bunch-type grasses and may have rhizomes and densely-haired nodes.



Figure 6 - Sterile brome - inflorescence



Figure 7 - Patch of sterile brome in grain