

# BARNYARD GRASS

## *Echinochloa crusgalli* (L.) Beauv.

**Family:** *Poaceae* (Grass).

**Other Scientific Names:** None.

**Other Common Names:** Large barnyard grass, cocksbur grass, summer grass.

**Legal Status:** Not categorized.



### Identification

**Growth form:** Annual grass.

**Flower:** Seed heads are often purplish and consist of crowded spikelets with large seeds. Awns (bristly hairs) may be absent or up to 2.5 cm long (Whitson et al. 1996).

**Seeds/Fruit:** The seeds resemble millet. They are about 3 mm long, shiny, and can be white, yellowish, greyish, or brown (Frankton and Mulligan 1970).

**Leaves:** The leaves are long, flat, 1.0–1.5 mm wide, slightly roughened to smooth, and lack ligules (membranes where the blade joins the stem).



**Stems:** Stems are 0.3–1.5 m tall. They are usually erect but may spread over the ground. Stem bases are often reddish to dark purple (Whitson et al. 1996).

**Roots:** Fibrous.

**Seedling:** Leaves may be slightly red at the base and have pointed tips. The stem is somewhat flattened until the 3-leaf stage (Royer and Dickinson 1999).



### Similar Species

**Exotics:** Can be distinguished from all other grasses in the province by the lack of ligules.

**Natives:** Some authorities recognize another barnyard grass (*Echinochloa pungens*). Many manuals consider this the same species since the 2 forms are so similar and the plants often hybridize. The *Echinochloa pungens* form was originally confined to open ground, such as eroding riverbanks, but now has spread to roadsides, lawns, and cultivated fields (Frankton and Mulligan 1970).

## Impacts

**Agricultural:** Considered one of the world's worst weeds, it is widespread in irrigated fields, gardens, barnyards, and other cultivated soils. It reduces crop yields and causes forage crops to fail to establish by removing up to 80% of the available soil nitrogen (Royer and Dickinson 1999). The high levels of nitrates it accumulates can poison livestock. It acts as an alternate host for several mosaic virus diseases. Heavy infestations can interfere with mechanical harvesting.

**Ecological:** Barnyard grass commonly occurs along roadsides, ditches, railway rights-of-way, and in disturbed areas such as gravel pits and dumps. It also invades riparian communities along riverbanks and shores of lakes and ponds.

**Human:** Used occasionally as a forage crop, but it grows in sparse stands and requires considerable moisture to be productive. The seeds are grown for human consumption in tropical Africa and Asia (Hitchcock 1971).

## Habitat and Ecology

**General requirements:** Requires a frost-free period of 160–200 days, warm summer days, and abundant soil

moisture. It tolerates a wide variety of soil types but is best adapted to areas with rich, moist soil and little

competition. In BC, it grows in moist open places, ditches, cultivated land, gardens, riverbanks, and disturbed habitats.

**Distribution:** Occurs in southern areas of the province and is present in all agricultural reporting regions. It ranges across North America to the Maritimes and south to the states of Florida and California.

**Historical:** Introduced from Europe. Originally cultivated as a forage and sold as a “wonder grass.”

**Life cycle:** Barnyard grass overwinters as a seed. It germinates in late spring after the soil has warmed. Some seeds continue to germinate over the summer. It completes its life cycle during the summer and dies after seed production in September or October (Maun and Barrett 1986).

**Mode of reproduction:** Primarily by seed. Stems often root from lower nodes that contact the soil, allowing the plant to spread during the growing season, but new plants do not survive over the winter.

**Seed production:** Individual plants can produce up to 40,000 seeds/year (Royer and Dickinson 1999). Seed production is highly variable and relates to growing conditions.

**Seed bank:** New seeds are dormant. Dormancy is often broken by exposure to low winter temperatures, alternating spring temperatures, or spring flooding, but some seeds remain dormant much longer. Deeply buried seeds (over 8 cm) lose no viability for 3 years, and some seeds can remain viable up to 13 years (Maun and Barrett 1986).

**Dispersal:** Water, birds, insects, machinery, and animal feet. Contaminated seed is probably the most common dispersal method.

**Hybridization:** *Echinochloa crusgalli* and *Echinochloa pungens* hybrids intergrade to be nearly indistinguishable.

## Management

**Biocontrol:** None.

**Mechanical:** Repeated shallow spring tillage can reduce emergence. Mowing is not effective since it stimulates growth from lateral buds.

**Fire:** Not effective.

**Herbicides:** Barnyard grass exhibits resistance to a number of herbicides, especially atrazine. In fact, the weed became a serious problem in some crops such as corn only after chemical control removed competing, non-tolerant weeds. Pre-emergent herbicides are most effective, since the plants are most susceptible at the seedling stage and established plants are resistant to most chemicals. Consult the most recent edition of BC Ministry of Agriculture, Food and Fisheries Crop Production Guides for specific recommendations.

**Before applying herbicides, read the label for full use and precautionary instructions.**

**Cultural/Preventive:** Small infestations are easily

hand-pulled. Fertilizing with liquid manure can spread viable seeds. Thoroughly compost manures from livestock that have eaten this plant. Do not move livestock that have eaten barnyard grass onto uninfested areas.

### Integrated Management Summary

Effective control relies on preventing establishment and seed production. Use cultural control on small infestations before the population can establish a seed bank and use appropriate herbicides on large infestations. Seed disturbed areas to perennial grasses and forbs to provide ground cover and competition. Manage grazing animals to maintain perennial plant communities.

## References

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