

# Systematic Botany. Lecture 13

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# Outline

Questions and answers

Grass-like plants

Gramineae, or Poaceae—grass family

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## Previous final question: the answer

How Pinaceae differs from Cupressaceae?

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How Pinaceae differs from Cupressaceae?

- ▶ Smaller seed scales which did not fused with bract scales
- ▶ Saccate pollen
- ▶ Brachyblasts, leaves are not dimorphic, not scale-like and not opposite

*Graminioid syndrome: discussion*

## Graminioid families

- ▶ Gramineae
- ▶ Cyperaceae
- ▶ Juncaceae
- ▶ And also Restionaceae, Ecdeiocoleaceae, Joinvilleaceae, Flagellariaceae, Mapaniaceae, Typhaceae

## Gramineae, or Poaceae—grass family

- ▶  $\approx 8,000$  species distributed thorough all the world, but most genera concentrate in tropics
- ▶ Prefer dry, sunny places
- ▶ Often form tussocks—compact structures where old grass stems, rhizomes and roots are intermixed
- ▶ Grasses form grasslands—specific ecological communities widely represented on Earth. North Dakota prairies are grasslands.

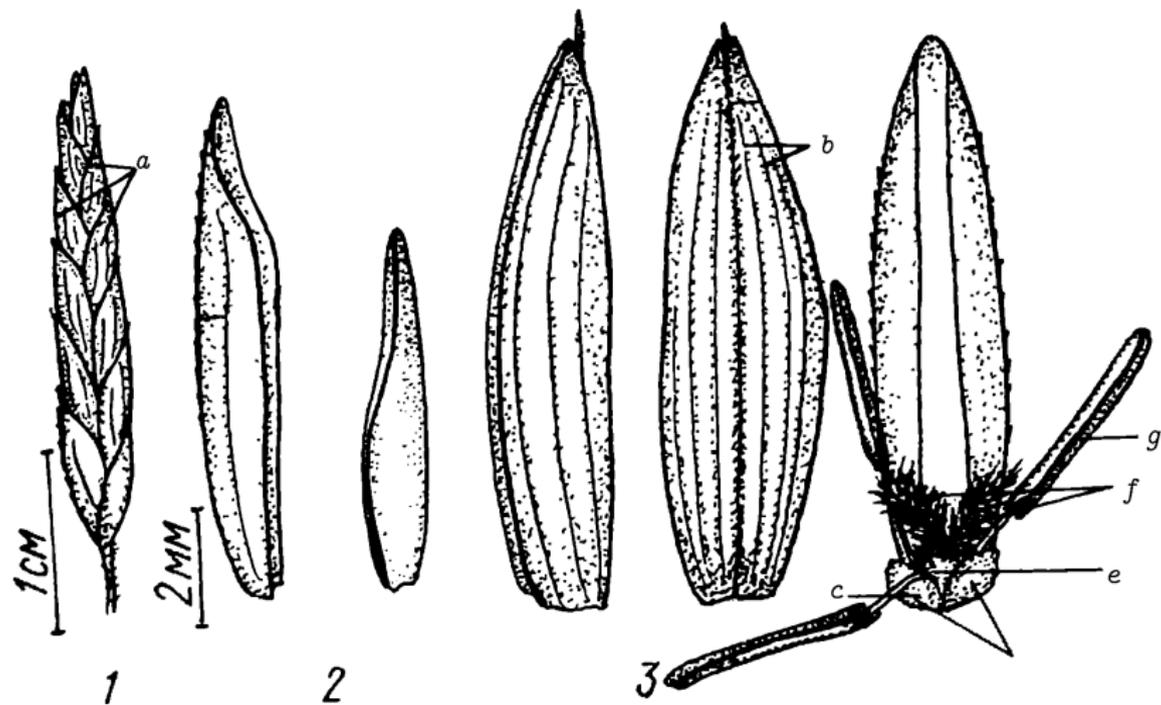
## Morphology of grasses

- ▶ Stems usually hollow and round
- ▶ Leaves flat, in two ranks
- ▶ Flowers reduced, wind-pollinated, usually bisexual, form complicated spikelets
- ▶ Each spikelet bear two glumes; each flower has lemma and palea scales
- ▶ Perianth is reduced to lodicules
- ▶ Stamens from 6 to 1 (most often 3), with large anthers
- ▶ Fruit is a caryopsis, it includes flower scales
- ▶ Seed has a specific embryo with coleoptile, coleorhiza and scutellum





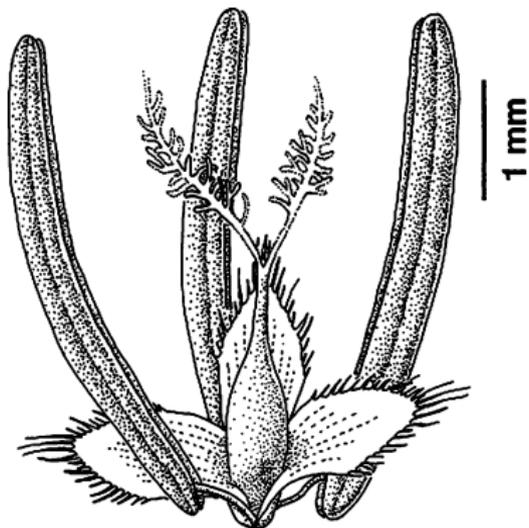


Bromegrass (*Bromus inermis*) spikelet and flower

## Grass flower origin



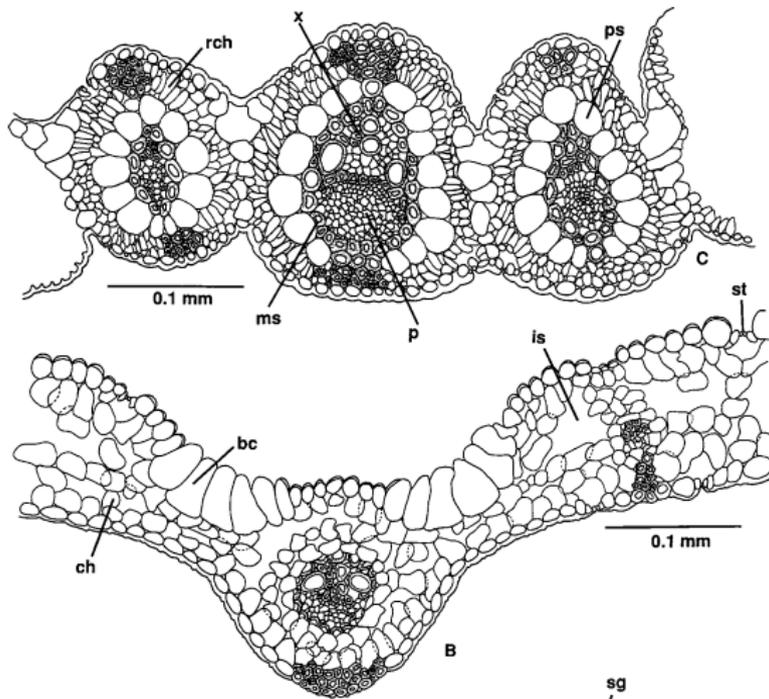
## Grass flower: bamboo



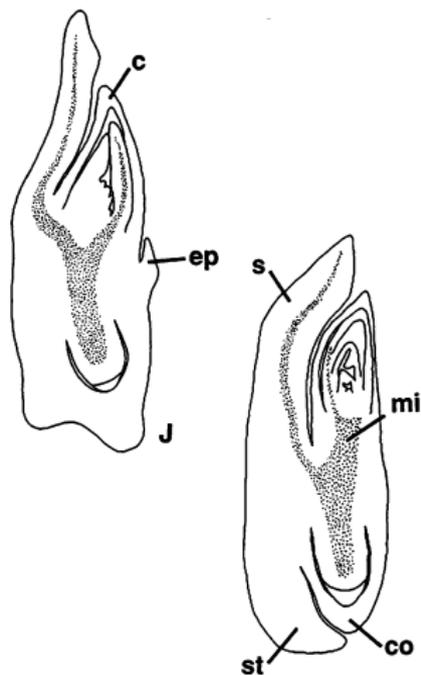
└ Grass-like plants

└ Gramineae, or Poaceae—grass family

## Kranz anatomy of leaves in C<sub>4</sub> grasses (above)



# Grass embryo





## Grass inflorescences

- ▶ Compound spikes
- ▶ Panicles

## Rare event: bamboo (*Schizostachyum* sp.) is flowering!





## Rice (*Oryza sativa*), the most important world crop



## Corn (*Zea mays*), the most productive world crop (up to 10 MT/ha)



## Final question (2 points)

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Why the grass embryo is unique?

## For Further Reading



O. A. Stevens.

*Handbook of North Dakota plants.* 3rd edition.

NDSU, 1963.