7_Forages & meadows

Photo: pivots on an Italian-algérien_ project in Timimoune (southern Algeria))

7_Nutrition course, 2nd year, UNIV. Médéa 2025-2026

Introduction

- Fodder, which includes grassland grass, is an essential component of livestock feed, available either fresh by pasture or preserved as hay or silage.
- Permanent grasslands provide fresh grass that forms the basis of food,
- while the preserved fodder is used during seasons when the meadows are not growing.
- The choice between these two forms depends on the needs of the animal and the conditions of the farm.

Green fodder (pasture)

- Direct grazing: Cattle graze on grass in natural or artificial grasslands during the grazing season.
- Natural feeding: Pasture allows for fresh, nutrient-dense feeding directly for the animals.
- Diversification: Animals can diversify their diet by grazing on grass and other plants such as tree leaves.

Preserved fodder

- Hay: Grass dried to be preserved longer.
- Silage: Semi-dried grass, preserved in plastic film, which keeps well.
- Use: Preserved forage is used during stall periods or when grassland grass is less available (such as in winter).

- Importance in livestock feed:
- Fodder forms the basis of the ruminant ration, representing 60 to 70%
- Source of nutrients: Forage, especially if it is of good quality and harvested at the right time, provides essential nutrients.
- Costs: The use of grasslands reduces production costs by using local resources.

Ryegrass, Fescue, Orchardgrass, Timothy, Bluegrass, vulpine, woolly swell and bromine

Ryegrass: A popular species, including English ryegrass and Italian ryegrass.

Fescue: includes meadow fescue and tall fescue, valued for their forage quality.

Orchardgrass: a productive species used in hay and pasture.

Bluegrass: Kentucky bluegrass is also widely used.

Timothy: another common grass in forages.

Others: species such as vulpine, woolly swell and bromine are also present.

1_ray-grass

- Ryegrass is a valuable forage for ruminants due to its high nutritional value and durability. It is rich in soluble sugars, proteins and fibers, and is highly digestible
- Its resistance to trampling makes it ideal for grazing meadows. The choice between varieties (English, hybrid or Italian) will depend on the production objective (grazing or mowing) and the specific conditions of the farm, as they have different characteristics in terms of productivity, digestibility and earliness.

Nutritional characteristics

- Nutrient-rich: Ryegrass is known for its high levels of crude protein, fibre and carbohydrates.
- High digestibility: Animals appreciate and digest it very well, making it a valuable resource for young, growing animals.
- Dependence on the harvest stage: Its nutritional value (digestible energy and protein content) depends strongly on its stage of maturity at harvest and the fertility of the soil. The nutritional value of grasses decreases rapidly after the ideal stage of exploitation.

Use in ruminant feed

- Ryegrass is a mainstay of livestock systems, used in several ways:
- Pasture: This is an excellent species for grazing, often used in a mix with other grasses or legumes (such as alfalfa). Cattle and sheep eat it willingly.
- Hay and Silage: It is very well suited to preservation, whether in the form of hay or silage, allowing you to build up stocks for the winter.
- Combination: It is often sown in association with other forage species to improve overall grassland productivity and diversify the ration.

Main Types of Ryegrass

- There are three main types of ryegrass, with different characteristics:
- English ryegrass (perennial): Characterized by good durability (3 to 6 years), easy establishment and good food value, it is well adapted to grazing, although less productive in periods of drought.
- Italian ryegrass (annual/biennial): Highly productive and fast-growing, it is ideal for quickly replenishing forage stocks (silage or hay). However, it is less resistant to drought and cold than the English type.
- Hybrid ryegrass: Resulting from the cross between English ryegrass and Italian ryegrass, it combines the advantages of both, offering a mixed use (mowing and grazing).

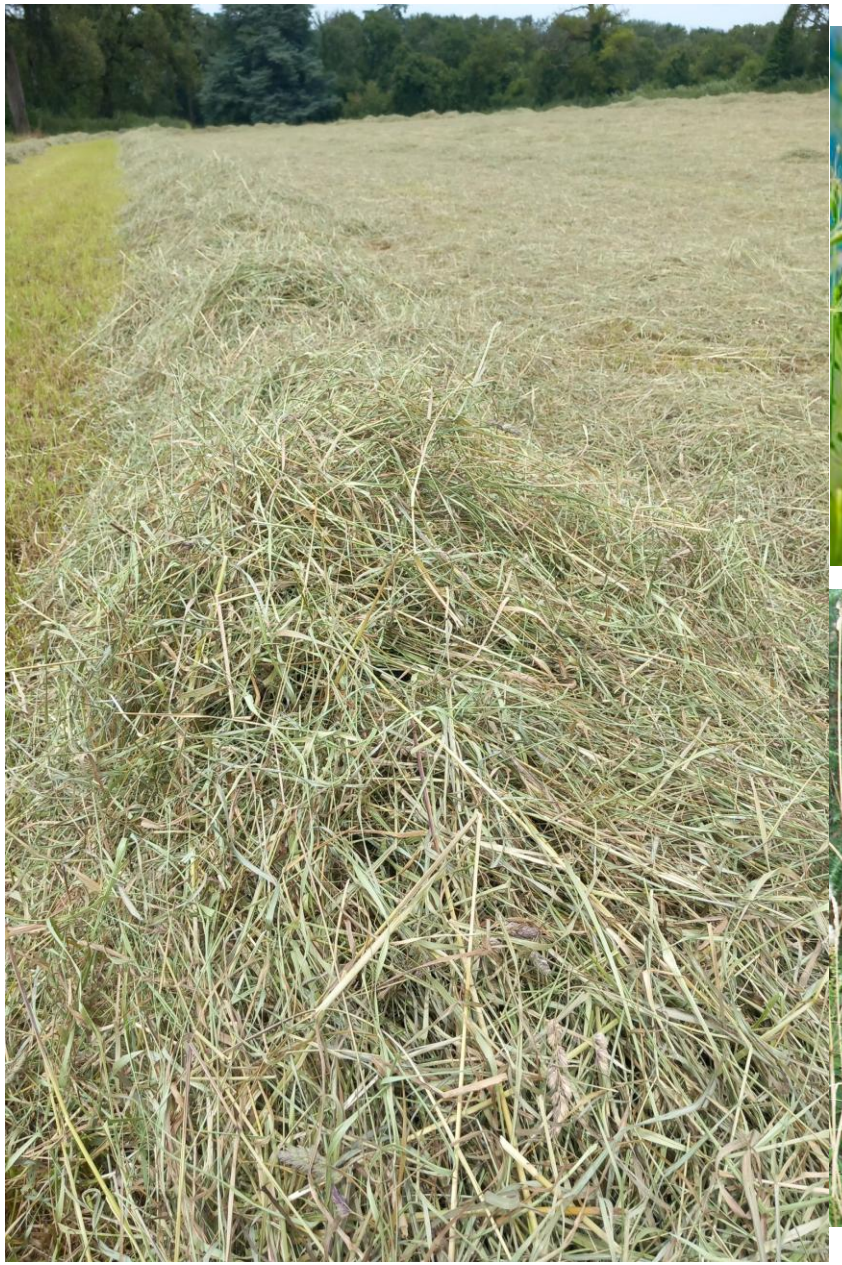
Point of vigilance

- One point of attention is ryegrass tetany (or whirling), a rare neurological condition that can occur in animals (cattle, sheep, horses) grazing on certain perennial ryegrass pastures infected with fungal endophytes, which can cause nervous symptoms.

2_Fescue

- Excellent grass for forage meadows thanks to its resistance and quality forage production, although it is often used in mixtures with other species such as ryegrass.
- Meadow fescue is adapted to moist soils and provides energy and protein forage in the deciduous stage, ideal for hay or grazing, and is well suited to mechanical harvesting. Tall fescue is another strategic option, particularly resistant and beneficial for long-term grasslands.

Fétuque



Meadow fescue/Fétuque des prés

- Adaptation: Prefers cool, moist soils, but also tolerates periodically flooded soils.
- Use: Often used as a grassland consolidator, but can be mowed two to four times a year for forage production.
- Benefits at the leafy stage: It is one of the most energy- and protein-rich grasses, with good palatability and leaf flexibility.

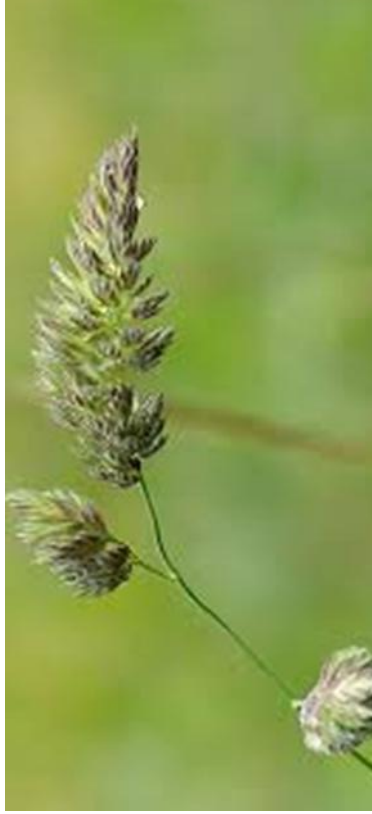
Tall fescue

- Adaptation: Very resistant, ideal for long-term meadows thanks to its deep root system.
- Grazing and mowing: After an initial mowing, it is adapted to grazing. It grows back well and extends the grazing period thanks to its extended fall growth.
- Food value: Less palatable than meadow fescue, but its regrowth after cutting is leafy. It is a good source of fibre for rations richer in maize.

General Tips

- Mixtures: Fescue is often sown in a mixture with other grasses such as ryegrass to optimize forage yield and quality.
- Harvest: In the deciduous stage, meadow fescue is a quality forage. For hay, the harvest is done at heading or the beginning of flowering.
- Sowing: It is advisable to avoid sowing in dry periods, as germinating seeds are very sensitive to drought.

3_Orchardgrass



- is a highly productive forage grass, ideal for meadow forage due to its drought resistance, summer growth and versatile use in grazing and mowing. It is very popular for its protein content and can be sown alone or combined with legumes such as white clover or alfalfa for a balanced diet. Forage production with orchardgrass is rather late, but it has a lifespan of six years or more. Some strains are designed for high yields and good palatability.

Benefits of orchardgrass

- Adaptability: It tolerates dry summers and cool soils well, but it does not like wet soils or flooding.
- High nutritional value: It is one of the most protein-rich grasses, with a good value in UFL and UFV, especially during the first shoot.
- Continuous production: It continues to grow in summer even when other species stop, making it valuable for summer grazing.
- Versatility: It can be used for grazing, hay or silage.

- Sow in late summer (August) on well-prepared soil
- Associations: To prevent it from taking over too much, especially in summer, it is often advisable to sow it in a mixture with a legume such as white clover or alfalfa.
- Pasture: Orchardgrass should be grazed regularly every 6 to 10 days to maintain its nutritional value, which decreases with maturity.
- Fertilization: It responds well to nitrogen inputs, but may require regular applications to maintain a good yield.

4_Timothy (Phleum pratense L.)

A hardy perennial grass that is very resistant to cold, widespread in temperate regions. It is a good to excellent value forage plant, used in meadows, for horses and livestock.

is usually 40 and 150 cm tall.

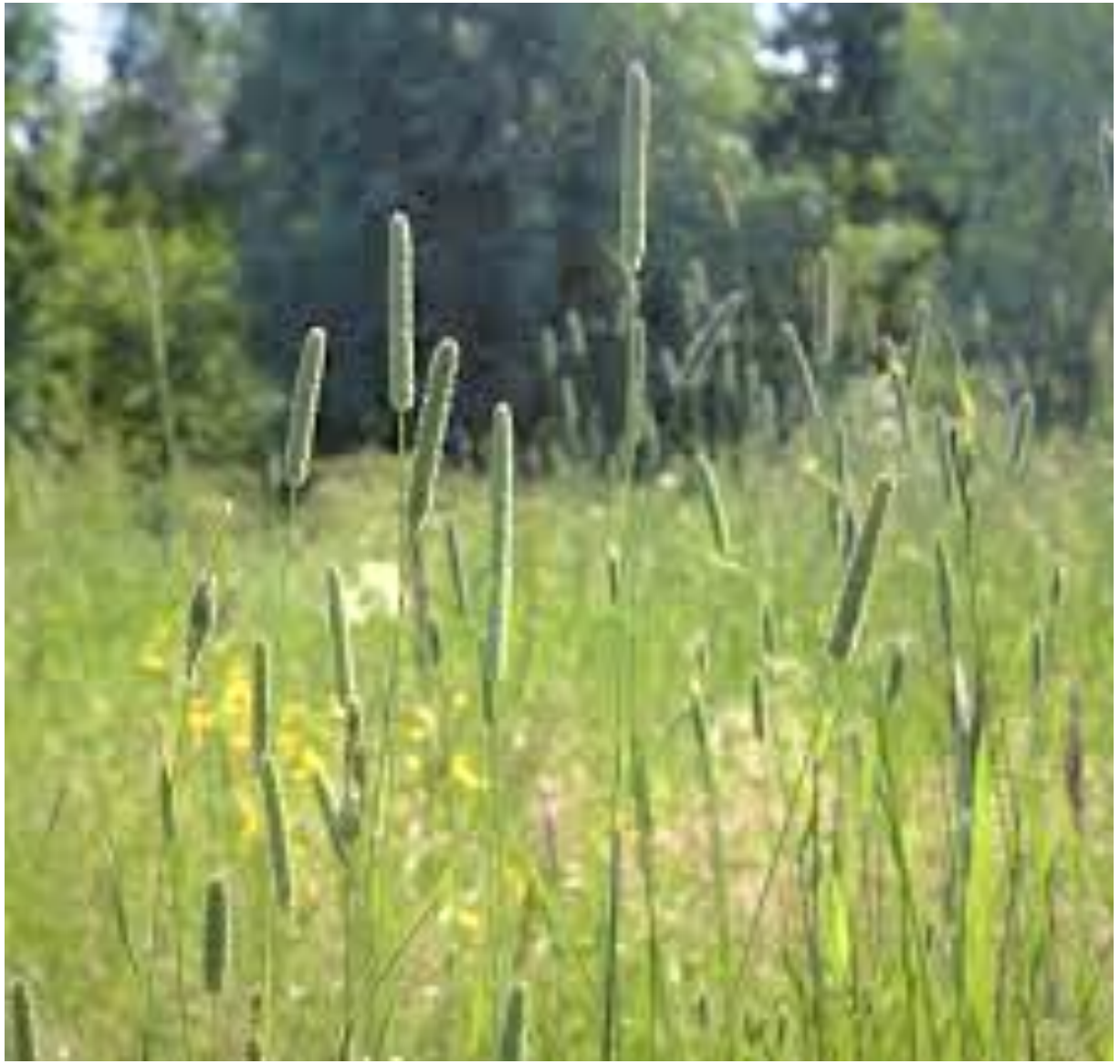
Stem: The culm (stem) is erect, often swollen or bulbous at the base.

Leaves: The leaves are glabrous, green or greenish-grey in colour.

Inflorescence: It is characterized by a very dense, cylindrical, spike-like panicle, green-gray to purple in color.

Identification: It can be confused with the meadow vulpine (Alopecurus pratensis), but the head of timothy appears about two months later, offering an interesting flexibility of exploitation.

Fléole des près

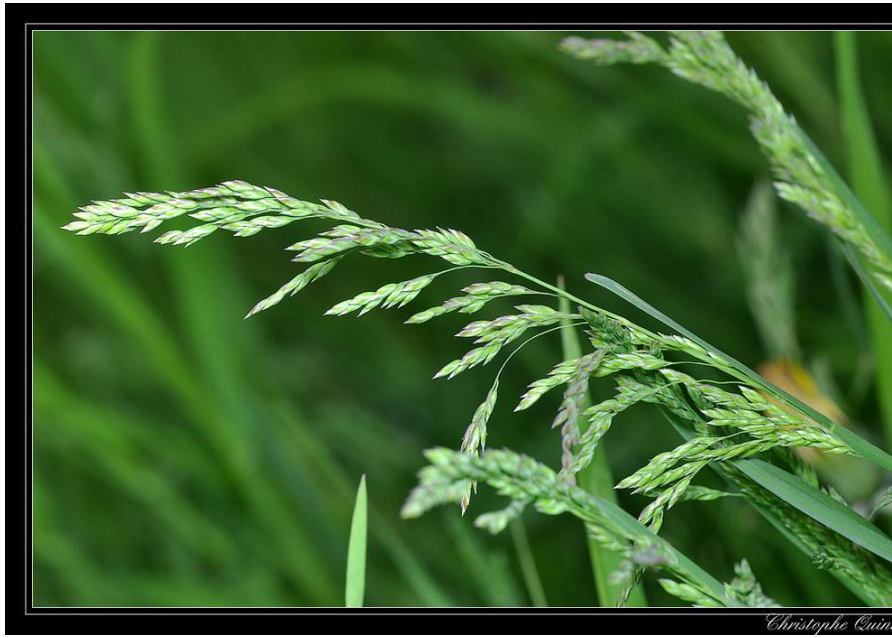


Habitat and Culture

- Timothy is adapted to temperate and humid environments, and prefers cold, moist soils. Its establishment requires very shallow sowing (1 to 2 cm maximum) in well-prepared soil because of the small size of its seeds.
- Uses
- Forage: It is a major forage grass, valued for its nutritional value (good to excellent when young). It is often incorporated into seed mixtures for perennial meadows and pastures.
- Allergies: Its pollen, which is spread by the wind from spring to fall, is one of the main allergens responsible for hay fever in early summer.

5_Kentucky bluegrass

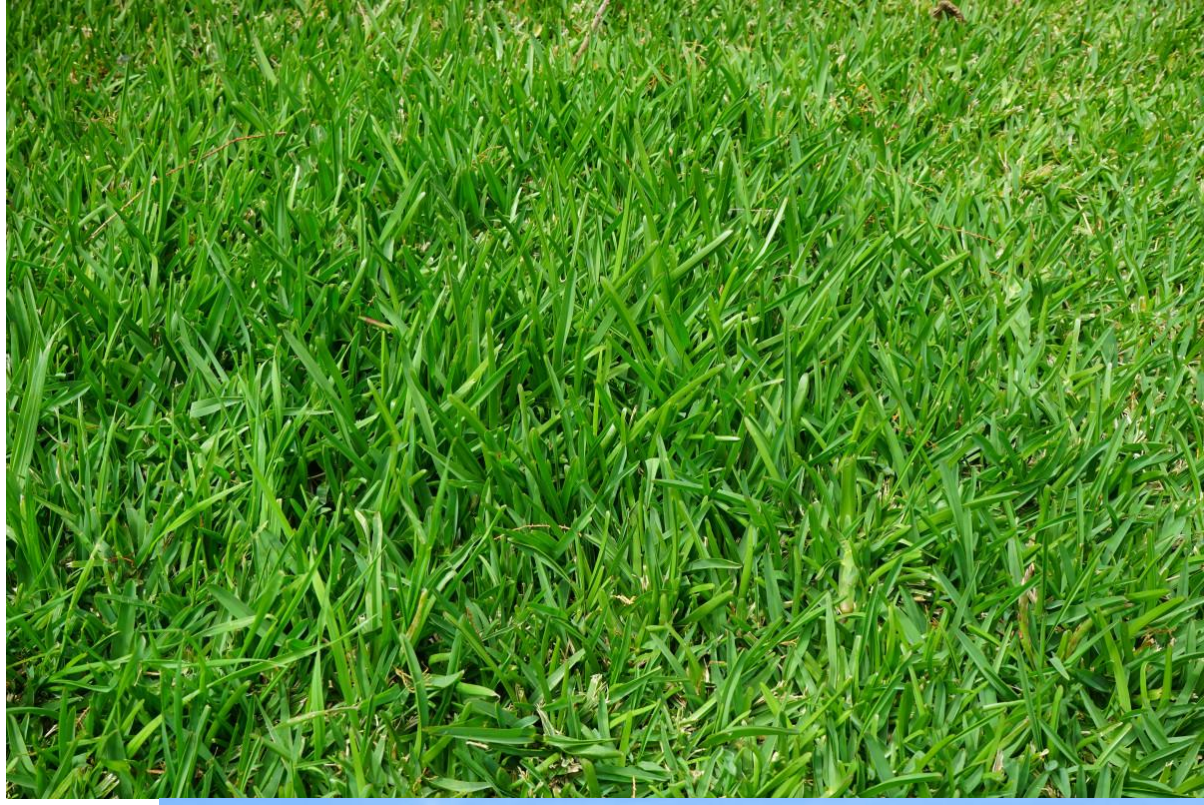
- Kentucky bluegrass (Poa pratensis) is a perennial grass that forms a dense turf thanks to its rhizomes and is appreciated for its resistance to trampling and harsh conditions. It is a perennial and evergreen plant that requires fertile soils and regular maintenance, especially adequate fertilization. Its leaves are thin and dark green, and it grows slowly when established.

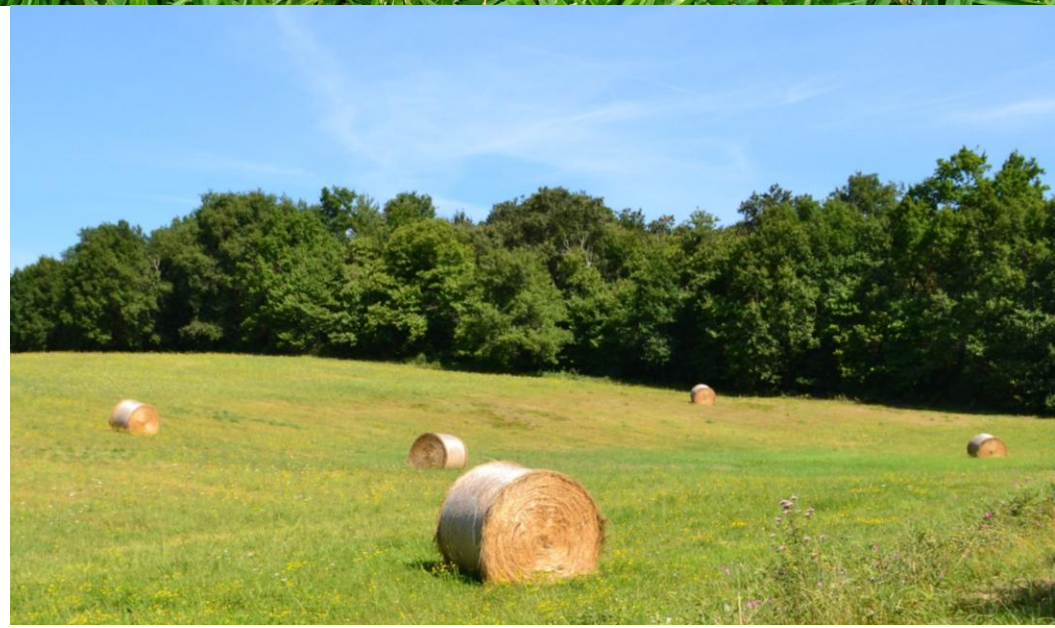


Key features

- Morphology: Perennial grass forming a dense lawn thanks to its long rhizomes.
- Leaves: Thin (2-5 mm wide), dark green, with a double central groove, a boat-shaped tip and a short ligule.
- Stem: Glabrous, erect or decombing, up to 75 cm long.
- Roots: A dense root system, composed of numerous rhizomes and fascicled roots.
- Use and adaptation:
- Ideal for heavy-duty lawns, sports fields, golf courses and pastures thanks to its resistance to trampling. Can be used in pure or mixed form in permanent grassland mixes.

- Resistant to cold, heat, and shady conditions. Thrives in alpine areas and withstands a long duration of snowmaking.
- Prefers moist soil, but is sensitive to waterlogged soil.
- Maintenance and Management Seedling: Slow growth at establishment, making it vulnerable to weed competition at first.
- Sowing rate: 8 to 10 kg per hectare, or 20 g per m^2 in pure.
- Sowing depth: 1 to 2 cm maximum.
- Fertilization: High nutrient requirement; Regular fertilization is essential for its proper development.





- Maintenance: Regular mowing to stimulate grass density.
- Watering: necessary to keep it well hydrated, but without excess water.
- Disease control: Aerating the soil and removing clippings can help.
- Advantages: Natural regeneration and great resistance.
- Tends to limit the appearance of weeds thanks to its dense root system.
- Cons: Slow growth at first.
- High maintenance requirements, especially in fertilization.
- Susceptible to certain diseases.

6_The meadow vulpine

- The meadow vulpine (Alopecurus pratensis) is a perennial grass valued for its quality forage and spring productivity, often present in intensive and wet permanent grasslands. It is adapted to mowing conditions, light grazing, and responds well to fertilization, although it can be susceptible to heavy trampling due to its rapid growth in spring.

Key Features & Productivity

- It grows very early in spring, making it a quality forage for mowing and light grazing.
- Tolerance: It is cold hardy and tolerates moist, fertile soils. It also tolerates nitrogen fertilization well.
- Growing conditions: It thrives in moist hay meadows from lowland to higher elevations.
- Sensitivity: It is sensitive to intensive trampling, which can penalize it in intensive grazing.
- Nutritional value: Its forage value is valued for its quality and productivity.

Usage

- Mowing: It is used in spring mowing, in permanent meadows where it offers quality forage.
- Pasture: Used as light grazing, but it is sensitive to overgrazing.
- Grassland systems: It fits well into permanent and semi-permanent grasslands, especially those that are moist.
- Use: used as spring mowing to produce quality fodder; possible in light grazing but
- (Vulpin des prés : Caractéristiques, culture et utilisations - Agryco13 févr. 2025) —

7_Bromine (genus Bromus)

- is a type of herbaceous plant in the Poaceae (grass) family. There are many species of bromine, some of which are grown as forage plants for livestock, while others are considered invasive weeds in cereal crops.

General characteristics

- Herbaceous, annual or perennial, belonging to the grass family.
- The plant forms clumps and has solitary stems. The inflorescences are usually large spikelets containing seeds.
- Some species, such as smooth brome, are known for their good drought resistance.
- Root system: Bromes can produce roots on the surface that help stabilize the soil and protect it from erosion.

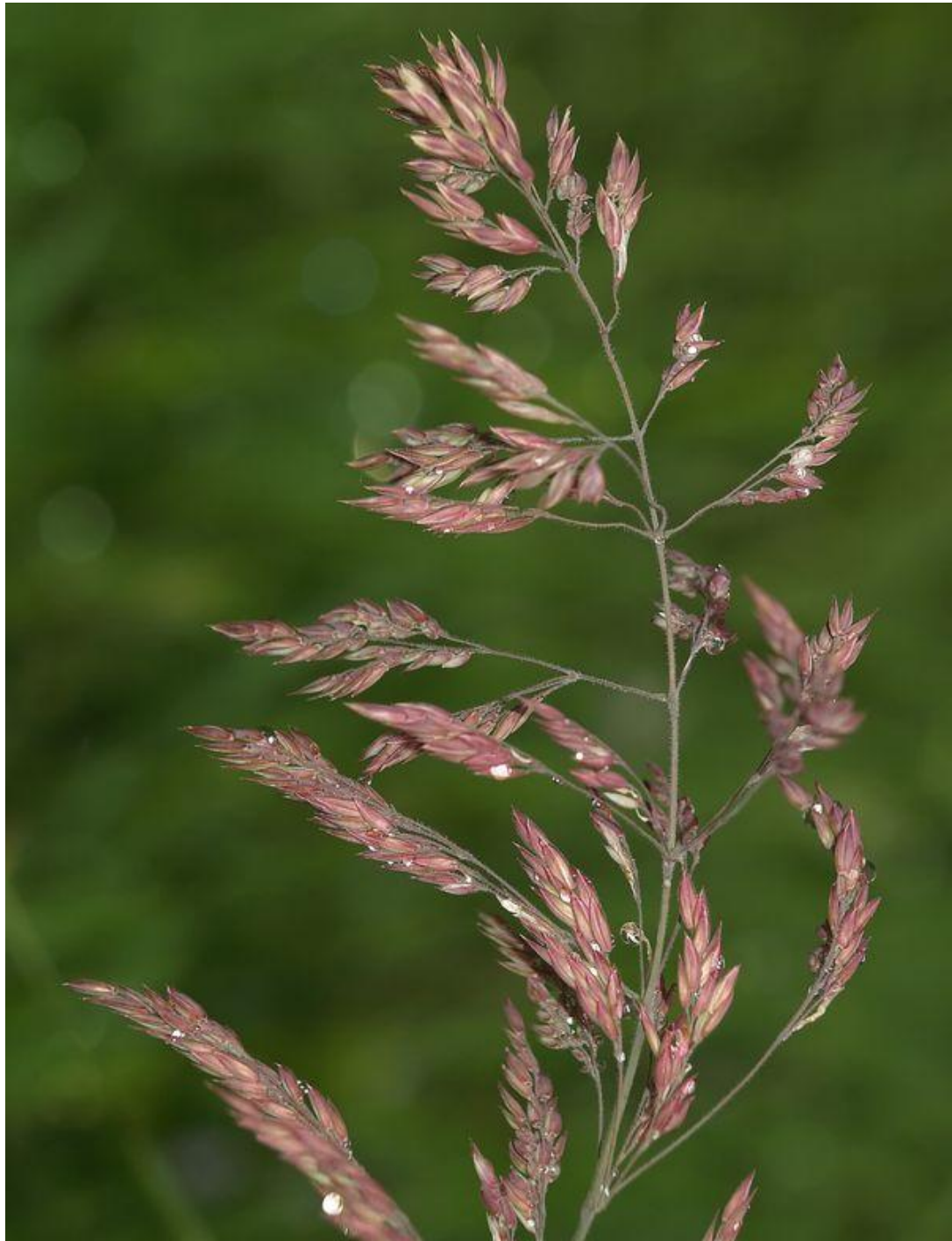
Uses and impacts

- Forage: Several types of bromine, including smooth brome (Bromus inermis) and meadow brome (Bromus riparius), are planted in temporary grasslands to serve as quality forage for livestock.
- Invasive plant: In some contexts, bromine is considered a problematic weed in cereal fields, which can reduce yields. Smooth brome, while beneficial to forage, can become invasive in natural grasslands.
- Soil Stabilization: Thanks to their root system, bromes help protect the soil from erosion.
- do not confuse the bromine plant with the chemical element bromine (Br), disinfecting swimming pools)

8_The woolly swell

Woolly grass (Holcus lanatus) is a common perennial grass in meadows and pastures, characterized by its soft, hairy foliage and stems.

- Appearance: It forms clumps and is distinguished by a soft, silky hairiness on its leaves and stem.
- Flowers: Its flowers are grouped in panicles that are often pink or reddish.
- Habitat: Highly adaptable, it is found in wet meadows, roadsides, embankments and lawns.



Use and management in grasslands and lawns

- Forage: Although it can be used as forage, its quality is considered satisfactory if it is harvested frequently. However, it is sometimes considered to have little fodder interest.
- Weed: In lawns or pastures intended for more "noble" forage plants, it is often considered a weed

Thank you