Extract from the German magazine „Innovation“

KEY CHARACTERISTICS

of valuable forage grasses and undesirable weed grasses

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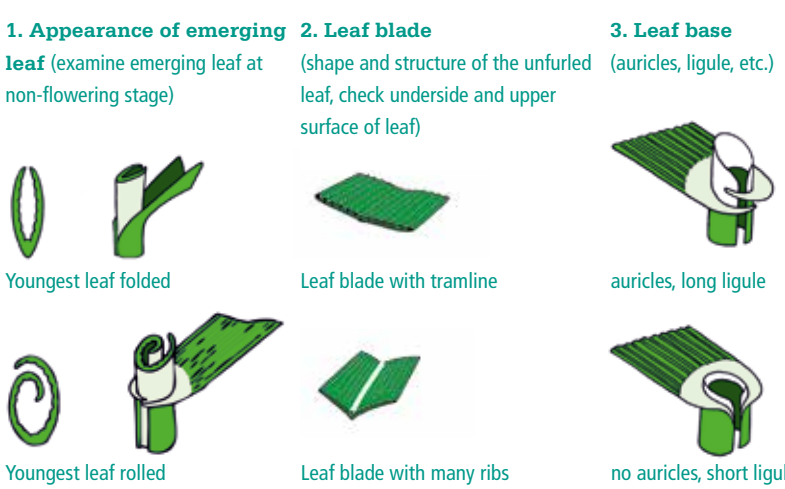
Doctors cannot treat their patients properly without first making a reliable diagnosis. Similarly, farmers should be able to diagnose problems themselves or consult a specialist if they are to fully exploit the potential of grassland and produce premium-quality forage. You can tell from the most common grass species growing on your pastures and meadows whether the sward is likely to deliver top quality forage, or whether overseeding, other management measures or even reseeding should be prescribed. Usually only sown species are desirable on arable fields, but on grassland the situation is more nuanced.

The following diagram provides some basic pointers for identifying grasses. You may find a magnifying glass helpful, because you will have to examine the plant characteristics closely:

Crucially, more than one characteristic must be examined to clearly identify the species. It's easy to make a mistake if you just give the plant a cursory glance. Simple distinguishing features of

Fig. 1: Characteristics of grasses



several important grass species which sometimes cause confusion are outlined below:

Perennial ryegrass is the most commonly grown productive grass in intensively managed grassland – and one which no meadow or pasture should be without. A vigorous plant, it is the only grass that is suitable for overseeding.

This medium-tall grass is very easy to identify; as well as having a folded shoot and strong ribbing on the upper surface of the leaf, it has very distinctive auricles and the underside of the leaf is shiny. It produces several individual shoots which grow straight up and clump together to form tussocks.

Though perennial in mild climates, as its name implies, it is sensitive to drought and frost and may not survive a severe winter. On nutrient rich fertile to moist soils it can produce exceptionally high yields (both cut and grazed). In short, it has the highest nutritional value and can be recommended for sowing without reservation.

Meadow fescue is the best long-lived tall grass. It is winter-hardy, high-yielding and palatable. The emerging leaf is rolled, the leaf blade has several prominent ribs and the underside of the leaf is shiny. The ligule at the base of the leaf is very short and it also has short auricles. Meadow fescue is found mainly on moist to fertile meadows and is not suitable for grazing. Due to its high feed value and growth habit, it is a very valuable forage grass that can be recommended for sowing without reservation.


Meadow fescue

Couch grass is a bottom grass with particularly long, underground runners. The emerging leaf is rolled and the dull leaves are a muted grey/blue-green colour. The sickle-shaped auri-cles are narrow and very distinctly overlapping. It is a perennial, winter-hardy grass that should be firmly held in check. As soon as it begins to dominate, couch grass must be treated as a weed because livestock tend to avoid it due to its hairy leaves and susceptibility to fungal infections. It thrives in fertile to moist conditions and is encouraged by high fertiliser inputs combined with infrequent mowing.

Tab. 1: Distinguishing features/areas of confusion: Auricles, spikes, shiny underside of leaf

	Perennial ryegrass	Meadow fescue	Couch grass
Emerging leaf	folded	rolled	rolled
Leaf blade	ribs, underside, very shiny	prominent ribs, underside shiny	less prominent ribs, short hairs
Leaf base	auricles, short ligule	short auricles, short ligule	very short ligule, sickle-shaped auricles
Flower	spike	panicle or double raceme	spike
Forage value	worth sowing without reservation	worth sowing without reservation	undesirable


Couch Grass

Cocksfoot is a very tall perennial grass which forms dense tussocks. Its flower heads are made of one-sided tightly packed clumps of spikelets which reassemble a cocksfoot. The emerging leaf is folded and the stems have a flattened base. The leaves are pale green to blue-green. It is quick to grow in the spring to provide an "early bite" and should be used when still young. Cocksfoot is productive, suitable for grazing and quick to regrow. It grows mainly on dry sites, where it can be used intensively with appropriate fertiliser inputs.


Cocksfoot

Timothy is a very tall grass with blue to grey-green leaves. It forms large clumps which stand out clearly from the other green grasses around it. The emerging leaf is rolled and the large, milky white, finely toothed ligule is very distinctive. The stems usually have a thickened bulbous base which stores energy reserves. As a result, it is a particularly hardy species, although sensitive to drought. It is suitable for fertile to moist meadows and pastures and can tolerate some flooding. It tolerates multiple cuts, although regrowth is weak.

Meadow foxtail has long, cylindrical flower heads made of densely packed spike-like panicles which resemble a 'foxtail'. The meadow grass grows very tall and forms loose clumps. The emerging leaf is rolled and the leaf blade has prominent, medium-fine ribs. It produces very early spring growth, but since it matures early, it can turn woody before most other grasses in the sward. It is persistent and winter-hardy but not tolerant of heavy grazing. It grows in fertile to moist nutrient-rich conditions and tolerates up to four, but ideally three cuts provided that it receives appropriate fertiliser input.


Meadow foxtail

Smooth-stalked meadow grass is a valuable, low-growing perennial grass. Since it shares a number of distinguishing features with other similar species listed here, it is particularly important to be able to clearly identify it to avoid confusion. It is winter-hardy, resistant to trampling, tolerant of frequent cutting and grazing and very palatable. It has a low, creeping habit and spreads by sending out multiple rhizomes (underground runners). Though slow to establish, it is the most valuable meadow and pasture grass for dry sites. Like other species of meadow grass, smooth-stalked meadow grass has a distinctive double groove or ‘tramlines’ down the middle of the leaf. In addition, the boat-shaped leaf tip splits into two points when you run your hand along the leaf toward the tip. The ligule is short and shaped like a shirt collar.


Smooth-stalked meadow grass

Annual meadow grass is a low-growing clump-forming grass. It has a folded shoot and, like smooth-stalked meadow grass, tramlines on the leaf blade and a boat-shaped tip. The ligule is rather large but more rounded than rough-stalked meadow grass.

The shoots can spread outwards on all sides to colonise bare patches. Although palatable, it has little nutritional value since it is unproductive, producing little in the way of yield when cut. A high incidence of this species is an indication of harmful soil compaction. If this occurs, the causes must be identified and addressed in the long-term. However, annual meadow grass is only the messenger and should not be controlled by chemical means. If measures are taken to reduce pressure from machinery or grazing pressure and if the sward is successfully overseeded, annual meadow grass will usually leave the field of its own accord to the benefit of the more valuable grass species.

Rough-stalked meadow grass is a short to medium ‘bottom grass’ which produces above-ground runners. It is related to the valuable smooth-stalked meadow grass and thus has


Rough-stalked meadow grass

some features in common. The shoot is folded and the leaf blade has the characteristic tramlines, but it doesn’t have the hooded tip. The underside of the leaf is often shiny. The ligule is long and pointed in the middle.

Rough-stalked meadow grass can spread particularly well in bare patches during damp years. It is an aggressive gap filler that tolerates grazing and frequent cutting. Livestock find it less palatable when it makes up a large proportion of the sward (> 20 %). If not grazed, it starts forming a dense musty mat.

Less valuable grasses with low forage quality

Grasses with a lower forage quality often share a number of features that make them less attractive to animals.

Bristly leaves are extremely narrow and so tightly folded that they are almost impossible to open. They taper to a sharp point like the bristles on a brush and livestock don’t like eating them because they feel hard and prickly (e.g. red fescue, Sheep’s fescue and mat-grass)

Hairs are used by plants to protect them from grazing animals. Hairy leaves are hard to masticate so tend to be rejected (e.g. Yorkshire fog, soft brome grass, couch grass).

Sharp edges are another weapon plants use to protect themselves from grazing. The leaves are so sharp that they can injure the mouths of grazing animals. This is particularly true of tufted hair grass, an undesirable grass species which livestock avoid eating.

Summary:

An inventory of plant species must be carried out at regular intervals to identify any potential for improving intensively managed grassland, to assess whether fertiliser inputs or mechanical cultivation, over- or reseeding are required, or evaluate the success of such measures, or to identify management failings and rectify them in the long term. When performing a plant survey, it is important to not only identify the weeds – a grassland professional must also have a keen awareness of the appearance and value of the productive grass species. Unfortunately, no reliable electronic aid is currently available to help the grassland farmer with this task. Agricultural training and education courses pay scant attention to grassland botany and advice on this subject is far too rarely sought. This article only aims to provide a few pointers to help identify the key species. Identification keys provide more in-depth information.

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