

Agriculture

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Identification of Cereal Seedlings

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Cereals growing in the field at the seedling stage may need to be identified as:

- spray contractors may need to make sure of the plant species before advising on spraying for weed control with currently registered herbicides.
- land valuers and surveyors completing cereal production forecasts often need to identify cereals at the early growth stages.
- farmers with potential wild oat problems in their crop may wish to differentiate wild oats from cultivated oats or other cereals to determine whether they should spray their crops.

In order to identify different cereal species, close observation of the seedlings at the junction of the leaf-sheath and leaf-blade is required (see the illustrations).

The following features help to distinguish the different cereal species.

Ligule

The ligule is a projecting flap or collar located at the junction of the leaf-blade and leaf-sheath. The ligule prevents water entering inside the leaf-sheath where it might be retained and cause rotting.

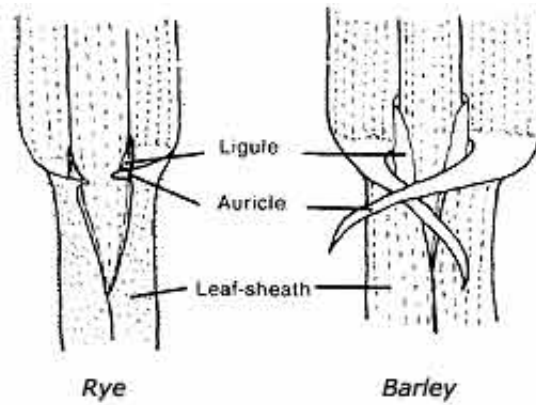
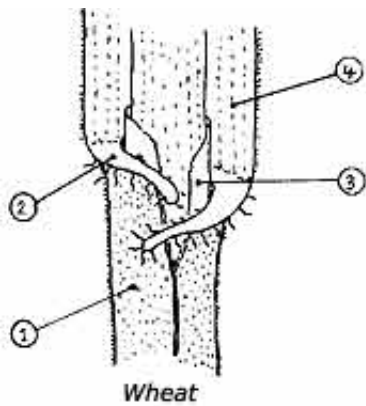
Auricle

The auricles are located at the lower end of the leaf-blade, where it meets the leaf-sheath. They may be extended as a pair of claw-like projections. Auricles are most obvious on barley and are absent in oats.

Leaf-blade

The leaf-blade of cereals is twisted or curled. When viewed from above these twists are either clockwise or anti-clockwise.

Key identification of common cereal seedlings



Single tiller of young plant with leaf-blades twisted clockwise when viewed from above.



Key to identification

1. Leaf-sheath: hairy or hairless: closed or open.
2. Auricles: absent, short, medium or long.
3. Ligule: short, blunt, medium length, acute; long, toothed.
4. Leaf-blade: direction of twist

Oat

Auricles absent, leaf-sheath and blade hairless (scattered hair on some varieties). Ligule medium length. Leaf-blades twist anticlockwise.

Barley

Auricles long, slender and hairless, leaf-sheath and blade usually hairless, scattered hairs on some varieties. Ligule of medium length. Leaf blades twist clockwise.

Rye

Auricles very short and hairless, leaf-sheath and blade have an inconsistent degree of hairiness. Ligule short. Leaf-blades twist clockwise.

Wheat

Auricles blunt and hairy, leaf-sheath and blade always hairy. Ligule of medium length. Leaf blades twist clockwise.

Triticale

Auricles blunt and hairy, leaf-sheath and blade hairy. Ligule of medium length. Leaf-blades twist clockwise.

Wheat and triticale are difficult to distinguish since their vegetative characters are similar. Removal of the seedling from the soil and observation of the grain shell may be a means of distinguishing wheat from triticale.

Wheat grain shells tend to be lighter in colour than triticale. Wheat shells are oval; triticale grain shells are oblong.

Wild oat

The common wild oat, a significant weed of cereal crops, cannot be distinguished from cultivated oats during vegetative growth. Wild oat seed however can be distinguished from the cultivated oat. Wild oat grain is usually darker, may retain its awn and is hairy at the base of the husk. The husk of cultivated oats is hairless.

An easy way to identify all oats from other cereals is to observe the twist of their leaves. When viewed from above, the oat leaf has an anti-clockwise curl. The leaves of other cereals curl clockwise.

Further reading

N. T. Gill and K. G. Vear, *Agricultural Botany*, Gerald Duckworth & Co. Ltd. London, 1969.

C. E. Hubbard, *Grasses: A Guide to their structure, identification, uses, and distribution in the British Isles*, Penguin Books, Britain, 1978.

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