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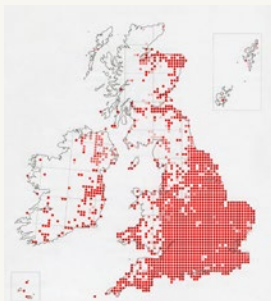
Identification of wild-oats

Dr Stephen Moss

In the UK, there are two main species which occur as weeds of arable crops. Their relative frequencies, as reported in the Atlas of the British Flora (2002), are given as the (%) of the 2852 10 x 10 km grid squares surveyed in which the species was detected.

Avena fatua – common or spring wild-oat

Occurs throughout England; more scattered distribution in Scotland and Wales. (55%). Germinates mainly in spring (March/April) but with a variable, and sometimes considerable, amount of autumn germination too (mainly Sept/Oct).



Avena sterilis ssp. *ludoviciana* – winter wild-oat

Less common and mainly found within 50 – 100 miles of Oxford where it was first recorded in the wild in 1910. (10%). Probably under-reported due to confusion with *Avena fatua*. Germinates mainly in autumn and winter, from October to early March, and is more tolerant of freezing conditions than *Avena fatua*.



Both species may occur within a single field, sometimes in mixture but sometimes in separate patches.

Why does identification of species matter?

- *Avena sterilis* ssp. *ludoviciana* is generally considered the more challenging species to control, requiring more robust strategies
- Seedling emergence patterns and winter hardiness differ between the two species so correct identification can help in herbicide decision-making
- Although herbicide resistance has been found in both species, it is relatively more common in *Avena sterilis* ssp. *ludoviciana*. The first cases of resistance in the UK were all found in this species despite its more limited distribution.



At the vegetative stage, wild-oats can be identified in cereal crops by:

Hairy leaf margins and the absence of auricles



No auricles on wild-oats (or cultivated oats) but leaf margins often hairy.



Wheat - well developed, hairy auricles (hairs restricted to the auricles).



Barley - large, hairless auricles.

Leaves twisting the opposite way

The lower half of leaves of wild-oats (and cultivated oats) tend to twist *anti-clockwise* when viewed from above (but note the leaf tips often twist clockwise)

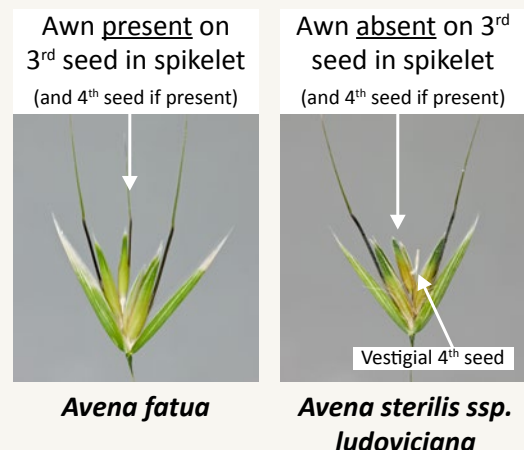
Wheat and barley leaves tend to twist *clockwise* when viewed from above.



It is not possible to identify reliably the different species of wild-oats at the vegetative stage

After wild-oat panicles have emerged, two features make it easy to identify the two species.

1. Presence or absence of an awn on the third seed in a spikelet



The first and second seeds in the spikelets of both species are always awned.

A fully developed 3rd seed is often not present – look at the biggest spikelets on the biggest plants to increase the chances of success.

The presence or absence of awns can often be assessed on vestigial (not fully developed) seeds – see photo left. Easier with a hand lens.

This identification method can be used any time after panicle emergence.

2. Whether seeds remain attached to each other or separate at shedding

Avena fatua – seeds separate when mature and are shed singly.



Avena sterilis ssp. ludoviciana – the two to three seeds within each spikelet remain attached together and are shed as a unit.



The best time for this assessment in wheat crops is in late July or early August when most seed shedding occurs.

This characteristic is most easily assessed by holding panicles inside a polythene bag and shaking vigorously. Samples collected in this manner will consist almost entirely of seeds, with no stalks, chaff or other debris.

Unripe seeds of both species will tend to remain attached together, so this identification method is less suitable for use prior to seed shedding.

Information sources

New Atlas of the British and Irish Flora. (2002). By C D Preston, D A Pearman & T D Dines. Oxford University Press, Oxford, UK. 910 pp. (Online version: <https://www.brc.ac.uk/plantatlas/>)

Wild-oats in World Agriculture. (1976). Edited by D P Jones. Agricultural Research Council, London. 296 pp.

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