IWMPRAISE — H2020-SFS-2016-2017/H2020-SFS-2016-2 – Inspiration sheet no. 12
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ALOPECURUS MYOSUROIDES HUDS.

Blackgrass

Scientific name: *Alopecurus myosuroides*

English name: Blackgrass
French name: Vulpin des champs
German name: Acker-Fuchsschwanz
Spanish name: Cola de zorra
Italian name: Coda di volpe
Danish name: Agerrævehale
Dutch name: Akkervossestaart, Duist
Slovene name: Njivski lisičji rep

AN ETERNAL WEED

Blackgrass is a common annual grass in winter crops. Blackgrass is classified as a segetal weed species (found exclusively in cultivated fields) and was undoubtedly introduced at the dawn of agriculture. Since the 1960s, it has become one of the most troublesome weeds in Europe. First dispersed by combines, blackgrass is now found throughout the northern half of France. Its dispersal in the region was favoured by the development of resistance to grass herbicides. A similar situation exists in Great Britain, Belgium, Germany and even in Turkey. Agronomists have known about the plant since the early 20th century and in spite of the known 'weaknesses' in its biological characteristics, which should in theory render it easy to control, it is a major weed in European crop systems.

Figure 1 - Geographical distribution of *Alopecurus myosuroides* in Europe and western Asia (after Van Himme & Bulcke, 1975)

Figure 2 - Infestation in winter wheat

BOTANY – ECOLOGY

Family: Grasses (= Poaceae)
Life cycle: annual plant (therophyte), **strictly cross-pollinated**. Emergence is mainly in the **autumn**, with a second peak of emergence at the end of winter. Its persistence and survival in fields is therefore linked exclusively to seed production and seed stock.
Favourable environment: all soil types, except for acid and sandy soils. Prefers calcareous soils.
Resistance to herbicides: Group A and B herbicides.
Botanical characteristics: 30 cm to 70 cm in height. Ligule uniformly denticulate, 3 to 6 mm, auricles absent. Plant glabrous, bluish-green with convolute vernation (leaves rolled in the bud). **Bunch-type** grass with numerous stems. Leaf blade rather broad, flat, elongate and pointed. Leaf sheath split, often with a reddish tint at the base and at the internodes.
Bloom: May to June. Inflorescence: very elongate (4 to 12 cm) pseudospike, often purple, cylindrical. Stamens white or purple.
Characteristics of the seeds: seed consisting of a unifloral spikelet. 150 to 500 seeds (**caryopses**) per plant. Limited capacity to survive in the soil (less than three years).
The seed can only germinate in the uppermost centimetres of the soil.

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BLACKGRASS

WHAT ACCOUNTS FOR ITS PRESENCE IN NO-TILL?

Blackgrass very much prefers winter and early spring crops (barley, pea). With the exception of sandy soils, blackgrass is found on numerous soil types, including shallow soils. Due to its limited capacity to germinate on the soil surface, its biology would theoretically not confer much of an advantage in no-till systems. However, the slight disturbance associated with tine-coulter seed drills is evidently enough to provide it with favourable conditions. It is readily dispersed by combines. The lack of disturbance permits it to complete its life cycle in summer crops (e.g. soybean after wheat), which contributes to maintaining substantial seed stocks.

CONTROL

Around 30 years of selection for herbicide-resistant plants has complicated blackgrass control considerably. It is resistant to ACCase inhibitors (HRAC A: clodinafop, pinoxaden, cycloxydim) and ALS inhibitors (HRAC B: iodosulfuron + mesosulfuron, pyroxsulam, imazamox). Resistance is widespread and affects several all grain-producing regions of Europe. Control failures are therefore common. The major mechanism is a non-target-site resistance that confers resistance to other active ingredients. In France, chlorotoluron (HRAC C2 - note the use restrictions) still seems to be effective. In no-till, blackgrass densities in fields can be reduced significantly by delaying the sowing date. Frequent inclusion of summer crops (soybean, corn, sunflower) in rotations helps reduce seedbank and ensures good control of blackgrass.

RISK OF CONFUSION

With other grasses such as loose silky-bent (*Apera spica-venti* L.), which is distinguished by a larger and deeply split ligule. Loose silky-bent, more common on acid loams, is also distinguished by a lighter yellowish-green colour. No further confusion is possible at the spiking stage: the loose panicle of windgrass, with spikelets having long awns, is quite distinct from the inflorescence of blackgrass.

BIBLIOGRAPHY

Chauvel B. et al. 2007. Des pratiques agronomiques peuvent-elles permettre de gérer une mauvaise herbe résistante aux herbicides ? AFPP —20th COLUMA Conference. Journées Internationales sur la Lutte contre les Mauvaises Herbes. Dijon - 11 and 12 December 2007.159-168. CD-ROM 1SNB 2-905550-13-9.
Résistance aux herbicide — vulpin : *https://www.r4pinra.fr/wp-content/uploads/2019/05/Cartes- AdventicesR%C3%A9sistantes-Mai19.pdf*

Figure 3 - Ligule

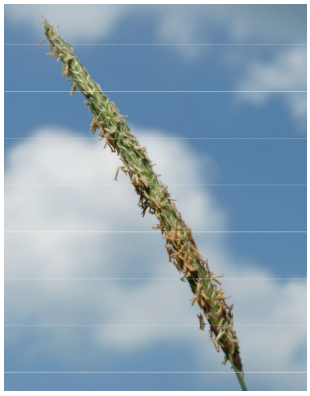

Figure 4 - Inflorescence

Figure 5 - Seeds

Figure 6 - Blackgrass emergence in no-till winter wheat