IWMPRAISE — H2020-SFS-2016-2017/H2020-SFS-2016-2 – Inspiration sheet no. 13
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727321

AMBROSIA ARTEMISIIFOLIA L.

Ragweed

Scientific name: *Ambrosia artemisiifolia* L.

English name: Ragweed
French name: Ambroisie à feuilles d'armoise
German name: Ambrosia, Beifußblättrige Ambrosia
Spanish name: Artemisa
Italian name: Ambrosia con foglie di artemisia
Danish name: Bynkeambrosie
Dutch name: Alsemambrosia
Slovene name: Pelinolistna ambrozija, Pelinolistna žvrklja

AN ARRIVAL FROM AMERICA 150 YEARS AGO

Ragweed was identified in France for the first time in 1863, in the department of Allier. It arrived in a shipment of red clover seeds from North America. The plant was introduced in various places in Europe in the late 19th century, particularly in France, Germany, the Netherlands and Switzerland.

Figure 1 - Ragweed plant

BOTANY – ECOLOGY

Family: Asteraceae (Composite family)
Life cycle: annual plant (therophyte), its persistence and survival in fields is thus linked exclusively to seed production and seedbank.
Favourable environment: all soil types. Ragweed is only found in 'open' environments and becomes quite scarce when the competition exerted by the vegetation cover is too intense (grasslands, forests).
High tolerance to stress: water, mowing, soil disturbance.
Germination period: spring (late March, early April) when the soil warms up, with staggered germination until September.
Botanical characteristics: 20 cm to 2 m in height. Leaves deeply pinnatifid, first opposite and then alternate. Hairs visible on the leaves. Stems more or less reddish. **Monoecious** (like corn) with male inflorescences at the tips of the stems and female flowers in the axils of the upper leaves.
Bloom: male flowering begins late July (intense pollen production). Female flowering begins later (mature seeds from early September on). A single plant produces 150 to 800 seeds.
Characteristics of the seeds: achenes highly variable in size and weight (ca. 4 mg). Can germinate on the soil surface and at depths of up to 6 cm. Can survive in the soil for more than 10 years.

Figure 2 - Vegetative growth

Figure 3 - Male inflorescence

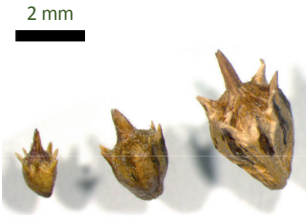

Figure 4 - Ragweed seedling

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WHAT ACCOUNTS FOR ITS PRESENCE IN NO-TILL?

Ragweed prefers spring and summer crops. It is rather indifferent to tillage type. The intercropping period is ideal for its growth. Its presence in no-till would be favored by the lack of tillage during this period.
Since the seeds can germinate on the surface, the lack of tillage is of no consequence. Because ragweed does not have any specific natural enemies, the potential of biological control is limited.
It is introduced in fields by several known vectors:

- transport by combines
- mixed in with seeds (main crops, cover crops, etc.)
- flooding

CONTROL

Highly competitive if not quickly eliminated. Herbicide control of ragweed has always been difficult in sunflower because the two species are closely related botanically. Because of substantial seed stocks, it has also become difficult to control in soybean. Numerous standard weed control solutions are still effective in corn.
The use of sunflower cultivars resistant to a given herbicide (e.g., Clearfield©, imazamox) is a two-edged sword: while these cultivars permit effective ragweed control, they also pose a risk of selecting for resistant plants. Localized hand rogueing is still the best solution for controlling small, localized stands.

BEWARE OF CONTACT WITH THE POLLEN!

Common ragweed is notorious for its allergenic pollen. A few grains per m^3 are enough to trigger reactions of varying degrees (rhinitis, conjunctivitis, etc.), depending upon the sensitivity of the individuals concerned.

RISK OF CONFUSION

Common mugwort (*Artemisia vulgaris* L.): although confusion is possible in the vegetative stage, mugwort leaves have more pointed indentations and are whitish (hairy) on the underside. They give off a pleasant odour when rubbed.

Figure 5 - Ragweed in a soybean field

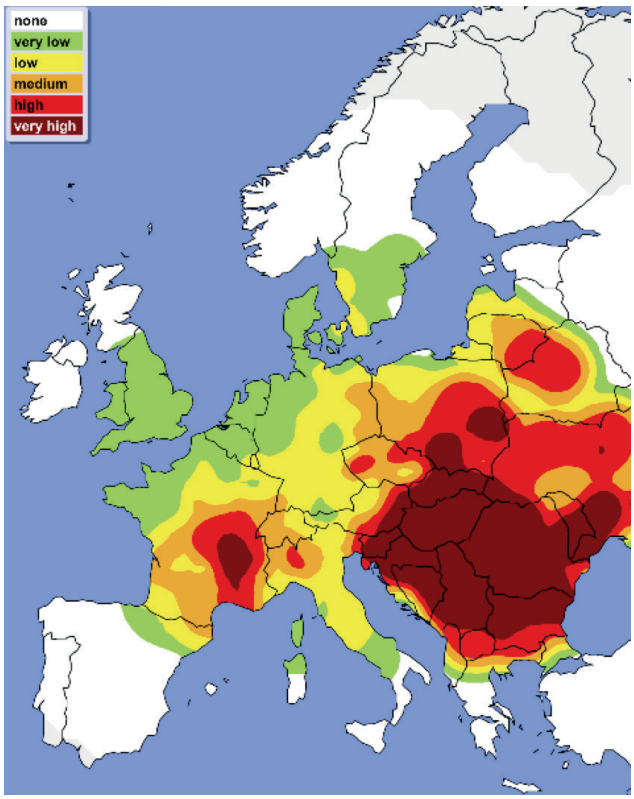

Figure 6 - Distribution of ragweed pollen in Europe (European Aeroallergen Network - EAN, 2008)

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