

## The biology and non-chemical control of Wall Barley (*Hordeum murinum* L.)

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### Wall Barley

(barley grass, mouse barley, squirrel's tail, waybent, wild barley)

*Hordeum murinum* L.

### Occurrence

Wall barley is an annual grass that occurs on the margins of cultivated fields (Behrendt & Hanf, 1979). It is common in central, southern and eastern England and scattered elsewhere. Distribution of wall barley in the UK is related both to the availability of ruderal habitats and to climate (Davison, 1970;1977). Frequency decreases with increasing rainfall and with decreasing temperature, although it can cope with increased rainfall if temperatures are higher. In ruderal situations it extends further into cooler wetter regions by taking advantage of features such as the base of house walls where conditions are locally warmer and drier.

Wall barley is part of a complex of overlapping sub-species whose centre of distribution is in the Mediterranean region (Davison, 1970). Sub-species *murinum* is a native annual grass found on waste and rough ground and barish patches in rough grassland in the UK (Stace, 1997). Sub-species *leporinum* and *glaucum* are introduced casuals. In Australia, ssp. *leporium* and ssp. *glaucum* biotypes have been reported with resistance to paraquat (Powles & Howat, 1990).

In New Zealand, wall barley is a particular problem to stock (Hartley, 1976). The sharply pointed seeds can penetrate the eyes, mouth and skin of sheep causing animal losses and devaluing the pelts. The level of damage is influenced by the breed of sheep, mainly due to differences in the structure of the coat. Sheep dogs too are affected when the seeds become embedded between their toes.

### Biology

Wall barley flowers from June to July (Clapham *et al.*, 1987).

Like many common grasses, wall barley seeds tend to germinate in the cool moist conditions of the autumn after shedding (Grime, 1981). In glasshouse tests, seedlings from seed sown on the soil surface emerged well but the seed was slow to germinate (Popay & Sanders, 1975). Seed sown at 2 mm below the surface or at 25 mm deep emerged well but with seed sown at 50, 75 or 100 mm emergence gradually declined. The deeper sown seeds did germinate but failed to emerge. Light was not required for germination. In Petri dish tests with seed maintained under high or low light intensity or in darkness, seed germinated completely in all conditions (Grime & Jarvis, 1976). Germination was uniformly high in alternating and constant temperatures in darkness and under a 'safe' green light (Grime *et al.*, 1981).

### Persistence and Spread

Seed sown in a 7.5 cm layer of soil in cylinders sunk in the field and stirred periodically, emerged mainly in the year of sowing with less than 1% of seedlings emerging in year 2 and none thereafter (Roberts, 1986). In pot tests a small

proportion of viable seeds did not germinate (Popay & Sanders, 1975). These may possess innate dormancy but it is thought unlikely that wall barley would build up a large seedbank in the soil.

### Management

Wall barley in pastures should be cut or kept closely grazed to prevent seeding (Morse & Palmer, 1925). Mowing off the flower heads before allowing access to stock can reduce injury from the seed awns (Popay & Field, 1996). Once the weed has flowered and set seed, even goats will not eat the seed heads. In New Zealand, increased grazing pressure in spring and early summer results in a lower frequency of wall barley in the pasture. Maintaining a short but not overgrazed sward eradicated wall barley in 2 years. Wall barley does not compete well against perennial ryegrass and white clover.

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