The biology and non-chemical control of Nipplewort (*Lapsana communis* L.)

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Nipplewort
***Lapsana communis* L.**

Occurrence
Nipplewort is an erect winter or summer annual, native in open woods, hedgerows, waste places and rough ground. It is common throughout the UK and is recorded up to 1,500 ft (Stace, 1997; Clapham *et al.,* 1987). Nipplewort is a common garden weed (Copson & Roberts, 1991). It grows best on nutrient-rich loamy and clay soils (Hanf, 1970).

Nipplewort occurs in cultivated fields and in the field margins (Long, 1938). It is often found spreading from the hedge bottom into the arable field (Marshall, 1989). Nipplewort occurs frequently in cereals (Grime *et al.,* 1988). In a survey of weeds in conventional winter oilseed rape in central southern England in 1985 it was found in 3% of the fields surveyed (Froud-Williams & Chancellor, 1987).

Two subspecies are recognised in the UK. Subspecies *communis* is the native annual, while ssp. *intermedia* is an introduced annual to perennial form recorded in just a few places.

Nipplewort has medicinal and therapeutic uses (Barker, 2001). This common garden weed was also used as a salad plant (Salisbury, 1961).

Biology
Nipplewort flowers from June to September (Morse & Palmer, 1925). The flowers are visited by insects but are often self-pollinated (Grime *et al.,* 1988). Seed is set from July to October. The average plant has 1,000 seeds. The average seed number per plant in ruderal situations is given as 3,206 (Pawlowski *et al.,* 1967). Seeds from the outer florets are longer than the inner ones but neither have a pappus.

Nipplewort germinates in autumn and spring (Salisbury, 1961). Seed buried in soil in the autumn and exhumed at monthly intervals, germinated only in the light or following a light flash (Milberg & Andersson, 1997). In full light, germination was high throughout the season. Seeds given just a 5 second flash of light had higher levels of germination in the late-summer and autumn (Andersson & Milberg, 1996). There was no germination in darkness at alternating or constant temperatures but seeds gave 57% germination at alternating temperatures under a ‘safe’ green light (Grime *et al.,* 1981). Seed germination is increased by a period of dry storage.

Seed sown in a 75 mm layer of soil in cylinders sunk in the field and cultivated periodically, emerged mainly in March to May with a smaller peak in August to October (Roberts & Neilson, 1981; Roberts & Boddrell, 1983). Most seedlings emerged in the year after sowing with just a small number still emerging by years 4 and 5. Plants from autumn germinated seeds over-winter as rosettes (Grime *et al.,* 1988).

Persistence and Spread

Nipplewort seed exhibits limited soil persistence (Grime *et al.,* 1988). Seed sown in the field and followed over a 5-year period in winter wheat or spring barley showed an annual decline of around 80% (Barralis *et al.,* 1988). Seedling emergence declined considerably after year 3. Emerged seedlings represented 15% of the seedbank.

In cereal seed samples tested in 1961-68, nipplewort was a contaminant in up to 1.7% of rye, 2.7% of oats, 0.7% of barley and 1.5% of the wheat samples tested (Tonkin, 1968). In a survey of weed seed contamination in cereal seed in drills ready for sowing on farm in spring 1970, it was found in 6% of samples (Tonkin & Phillipson, 1973). Most of this was home saved seed. In cereal seed sampled in the period 1978 to 1981, nipplewort seed was found in up to 2% of wheat and up to 3% of barley samples tested (Tonkin, 1982). In grass seed of UK origin tested in 1960-61, nipplewort seed was a contaminant in 1.0 to 12.3% of samples of different cultivated grasses (Gooch, 1963). It was present in 3.3 to 29.6% of grass seeds of Scandinavian origin. In clover and grass seed samples tested in Denmark for the period 1966-1969, nipplewort was one of the most frequent contaminant being found in around 20% of samples (Olesen & Jensen, 1969). In seed samples tested in the periods of 1955-57, 1939 and 1927-28, nipplewort seed was a contaminant in 13.5, 10.7 and 6.4% of samples respectively

Management

The introduction of nipplewort seed with crop seed should be avoided (Morse & Palmer, 1925). The weed is kept under control by thorough cultivation and free use of the hoe (Long, 1938). Plants in the field margins should be trimmed back to prevent seeding.

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