

Galium aparine
Bedstraw
Rubiaceae

Galium aparine is an annual, with either a climbing, prostrate habit, or sometimes low and erect habit. It is thought to be native to Europe, and is found in grassy, half-shady habitats at lower elevations, from the California Floristic Province to Alaska. *G. aparine* is also found on the east coast of the US (Hickman, 1993). Its time of emergence is early fall (Puntieri and Hall, 1996). After emergence, individuals branch from the base and can break off, producing ramets; this system of ramification allows individuals to respond favorably to stem damage caused by low temperatures during the fall and winter (Puntieri and Hall, 1996).

The fruits of *G. aparine* are diacocccuses disintegrating into two round carpels with small hooks. They are strongly adapted to ectozoochory; dispersal by ants is an additional method of fruit dispersal, even though the fruits lack elaiosomes (Cussan et al. 1996).

Galium aparine has large seeds, with a weight of 9.5 g per 1000 seeds, and could be presumed to require more energy for germination and seedling emergence (Cussan et al., 1996). Because of its large seed size, Cussan et al (1996) found *G. aparine* to be the least responsive to depth of sowing and soil aggregate size of the four weed species they surveyed. Thompson et al. (1997) found that when heated to 51°C for at least 4 days, germination was completely inhibited. This level of heat in the soil might be replicated by a mulch treatment, where temperatures can reach as high as 50-60°C.

The fungicide epoxiconazole influences the growth and development of *G. aparine*, partly due to the inhibition of gibberellin biosynthesis (Benton and Cobb, 1995). Spraying the the field rate of 125 g ai ha⁻¹, plants were severely stunted seven days after treatment, with plant height reduced by 43%. This result may be more important in an agricultural context, where the goal is not complete removal of weeds but reduction of their competitive ability against crop species. The post-emergence herbicide amidosulfuron applied at a rate of 30 g ai ha⁻¹ was effective at preventing new growth at the seedling stage, but less effective at older plant stages (West, 1995). These results suggest that the most effective application time for this herbicide is soon after most *G. aparine* seed has germinated (i.e., March-April when plants are small and actively growing). Corn gluten meal was shown to reduce survival and shoot length of *G. aparine* by more than 50%, and root development by 80%, when applied at a rate of 324 g m⁻² (Bingaman and Christians, 1995). The herbicide fluroxypyr is more or less effective in controlling different populations of *G. aparine*, but the mechanism for the differences in tolerances among populations is unclear (Hill et al., 1996).

Literature cited:

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