Enhancing the floral diversity of semi-improved grassland

This is grassland that contains a reasonable variety of fine-leaved grasses, such as Red Fescue, Common Bent, Meadow Foxtail, Sweet Vernal-grass and Crested Dog's-tail. There may be some herbs present, such as Buttercups, Dandelion and Common Sorrel. However, herbs will be scarce if the sward has treated with a broad-leaved herbicide. Damper grasslands may also contain patches of rush, sedge and Tufted Hair-grass. Grasslands with a high proportion of False-oat Grass, Cocksfoot, Yorkshire Fog, Perennial Rye-grass and White Clover are unsuitable for floral enhancement using the methods described in this note.

The flora of the site should be surveyed between May and July (when grasses and herbs will be in flower). As the existing sward already has some species diversity, the aim should be to retain this as far as possible. The botanical survey will identify areas where seed introduction could be beneficial and indicate the target community to be restored, but may also suggest that the sward could be restored without seed introduction.

Patch- or strip-spraying method using no soil disturbance

This method involves no soil cultivation so minimises nitrate leaching and disturbance that could lead to a flush of perennial weeds. It can be done using equipment readily available on the farm, and as an "innoculation" technique does not require a large quantity of seed (so is cost-effective if seed has to be purchased).

Seed will be sown (or green hay or foraged seed strewn) over killed areas of the sward. Herbicide should be applied to the sward when there is sufficient leaf area to absorb the chemical, but not on tall or tussocky grassland, or if thick grass mats are present.

Flower-rich grassland 12 years after band-spraying and strip seeded, Lincs. Photo: Sue Everett

Prior to spraying the sward should be grazed or mown, and harrowed if there are any grass mats. Areas should be chosen to patch- or strip-spray with a total-kill herbicide. The size and number of patches or strips to be sprayed will depend on the size of the area to be enhanced and the available equipment, as will the choice of spraying method (knapsack, atv-mounted, tractor-mouted boom). The total area killed should not exceed 30% of the site, and the patches should be well-distributed across the field.

After the grass has been killed, an appropriate seed mix (which should contain Yellow Rattle) should be broadcast by hand over the killed patches, by using a spinner or by drilling seed on to the soil surface along sprayed strips. Additional Yellow Rattle can be broadcast into the untreated areas of grass. Wild seed should not be buried as it requires light to germinate.

The treated areas should be sown at a rate between 10-20kg/ha (1-2g/m^2). If green hay or forage is used the material should be strewn at a ratio of 1:2 – 1:3 (area of donor:receptor site).

Whole-field treatment using mechanical preparation methods

This technique is not suitable for sites with a history of dock or creeping thistle infestation, or for highly improved swards that have been regularly fertilised.

- Create 30-50% bare ground across the whole field prior to sowing by power harrowing or discing[3]
- Using a sowing rate of 10-20kg/ha broadcast the seed across the whole site (if possible avoiding any large areas that have not been disced)

Smaller areas of a field can be treated, and these innoculated with seed (requires less seed).

This note was compiled by Sue Everett, as a contribution to the *Flora locale* Local Seeds for Local Needs Initiative and the Thames Valley Meadows Action Plan Project. October 2004.

Version 111004