

The list of plants recorded as disliked by one or more breeds of sheep is shown in Box 12, again with the number of records for each species. The list is shorter than the likes but includes 37 species etc. Immediately apparent is the number of species, genera or other categories that are common to both the list of likes and the list of dislikes. In all there are 13 such common entries: coarse grass, scrub, woody vegetation, *B. pinnatum*, *C. vulgare*, *Cirsium* spp., *Juncus* spp., *J. effusus*, *M. caerulea*, *Pinus* spp., *P. spinosa*, *Salix* spp. and *U. dioica*. Where these represent differences between breeds further selection of breeds for particular management objectives may be possible.

Easily the most frequently recorded disliked species was *B. pinnatum* with 15 citations, including for Soay which was also reported to like this species; whether this reflects differences within the breed or type and abundance of alternative food plants cannot be resolved from the data. Other coarse grasses, *M. caerulea* and *Deschampsia cespitosa* were equal second most frequently mentioned dislikes (5 mentions each) and the general terms coarse grass and rank grass had four and three citations respectively. In addition to these three species a further ten species of grass or rush were listed; in all, grasses and rushes accounted for 53 of the 92 dislikes.

Of the non-Gramineae only *Origanum vulgare*, *P. aquilinum* and *C. vulgare* achieved more than two records, although species of *Cirsium* totalled six records.

Box 12: Plants recorded as 'disliked' by at least one breed of sheep; numbers in brackets indicate number of records

- | | |
|---------------------------------------|--------------------------------------|
| 1. Coarse grass (4) | 20. <i>Erica</i> spp. (1) |
| 2. Rank grass (3) | 21. <i>Holcus lanatus</i> (3) |
| 3. Scrub (4) | 22. <i>Iris foetidissima</i> (1) |
| 4. Woody vegetation (2) | 23. <i>Juncus</i> spp. (4) |
| 5. <i>Agrostis capillaris</i> (1) | 24. <i>Juncus effusus</i> (2) |
| 6. <i>Arctium</i> spp. (1) | 25. <i>Ligustrum vulgare</i> (1) |
| 7. <i>Brachypodium</i> spp. (1) | 26. <i>Molinia caerulea</i> (5) |
| 8. <i>Brachypodium pinnatum</i> (15) | 27. Moss (1) |
| 9. <i>Brachypodium sylvaticum</i> (3) | 28. <i>Nardus stricta</i> (2) |
| 10. <i>Bromus erectus</i> (1) | 29. <i>Origanum vulgare</i> (4) |
| 11. <i>Bromus hordeaceus</i> (3) | 30. <i>Pinus</i> spp. (1) |
| 12. <i>Calamagrostis epigeios</i> (1) | 31. <i>Pinus sylvestris</i> (1) |
| 13. <i>Calluna vulgaris</i> (3) | 32. <i>Prunus spinosa</i> (2) |
| 14. <i>Cirsium</i> spp. (2) | 33. <i>Pteridium aquilinum</i> (3) |
| 15. <i>Cirsium arvense</i> (2) | 34. <i>Pulicaria dysenterica</i> (1) |
| 16. <i>Cirsium vulgare</i> (2) | 35. <i>Rosa canina</i> (2) |
| 17. <i>Crataegus monogyna</i> (1) | 36. <i>Salix</i> spp. (1) |
| 18. <i>Deschampsia cespitosa</i> (5) | 37. <i>Urtica dioica</i> (1) |
| 19. <i>Echium vulgare</i> (2) | |

Table 34. Plant species ‘disliked’ by various breeds of sheep: full names of species as in Box 12. Values in brackets show number of reports of the ‘preference’ if greater than one

Breed or Cross	Plant species ‘disliked’
Berrichon du Cher x	<i>M. caerulea</i>
Beulah Speckled Face	Coarse grass, Scrub, Woody vegetation, <i>B. pinnatum</i> (4), <i>B. sylvaticum</i> , <i>B. erectus</i> , <i>C. monogyna</i> , <i>H. lanatus</i> , <i>Juncus</i> spp., <i>P. aquilinum</i> (2), <i>R. canina</i>
Beulah Speckled Face x Suffolk	Woody vegetation
Black Welsh Mountain	<i>Cirsium</i> spp., <i>E. vulgare</i>
Cheviot	<i>D. cespitosa</i> , <i>J. effusus</i>
Derbyshire Gritstone	<i>B. pinnatum</i>
Dorset	Scrub, <i>B. pinnatum</i>
Exmoor Horn	<i>B. pinnatum</i> , <i>Erica</i> spp.
Hebridean	Coarse grass, <i>Arctium</i> spp., <i>C. vulgaris</i> (3), <i>Cirsium</i> spp., <i>I. foetidissima</i> , <i>M. caerulea</i> (2), <i>Pinus</i> spp., <i>P. sylvestris</i> , <i>R. canina</i> , <i>U. dioica</i>
Herdwick	Coarse grass, <i>C. arvense</i> , <i>C. vulgare</i> , <i>M. caerulea</i> , Moss
Jacob	<i>B. hordeaceus</i> , <i>O. vulgare</i>
Kent	<i>C. arvense</i> , <i>C. vulgare</i>
Leicester Longwool x	<i>B. pinnatum</i>
Manx Loghtan	<i>H. lanatus</i> , <i>O. vulgare</i>
Masham	Scrub, <i>B. pinnatum</i>
Mule	Scrub, <i>B. pinnatum</i> (2)
Northumberland Blackface	<i>N. stricta</i> , <i>P. aquilinum</i>
Rough Fell	Rank grass, <i>B. pinnatum</i>
Scottish Blackface	<i>D. cespitosa</i> , <i>J. effusus</i> , <i>M. caerulea</i> , <i>N. stricta</i>
Scottish Blackface x	<i>D. cespitosa</i> , <i>Juncus</i> spp.
Scottish Halfbred	<i>Brachypodium</i> spp., <i>L. vulgare</i>
Soay	<i>A. capillaris</i> , <i>C. epigeios</i> , <i>H. lanatus</i> , <i>P. dysenterica</i> , <i>Salix</i> spp.
Southdown	<i>B. hordeaceus</i> , <i>D. cespitosa</i> , <i>Juncus</i> spp., <i>O. vulgare</i>
Southdown x Jacob	<i>B. hordeaceus</i> , <i>O. vulgare</i>
Suffolk x	<i>P. spinosa</i>
Swaledale	Rank grass, <i>B. pinnatum</i>
Texel	Coarse grass
Texel x	<i>D. cespitosa</i> , <i>Juncus</i> spp., <i>P. spinosa</i>
Welsh Mountain	Rank grass, <i>B. pinnatum</i> , <i>E. vulgare</i>
Wiltshire Horn	<i>B. pinnatum</i> , <i>B. sylvaticum</i> (2)

Amongst the breeds (Table 34) Beulah Speckled Face and Hebridean had the longest lists of dislikes, but this may reflect their wider usage in conservation grazing projects and hence more detailed study of their preferences. Perhaps the most striking aspect of these two lists is how few species there are in common: despite between them including 19 of the 37 dislikes, only coarse grass and *Rosa canina* were shared. Beulah Speckled Face accounted for four of the records for *B. pinnatum* but this species was not mentioned as disliked by Hebridean, whereas the latter provided all three records of a dislike of *C. vulgaris*. In contrast to the four records indicating that Hebridean liked *M. caerulea* (Table 33) there were two indicating that the breed disliked this species; once again, this may indicate differences within the breed or the quality and abundance of alternative grazing.

In total ten breeds or crosses were recorded as disliking *B. pinnatum*, five disliked *D. cespitosa* and three *M. caerulea*. The four breeds with a dislike of scrub included a down breed (Dorset) and perhaps more surprisingly, three hill breeds or crosses (Beulah Speckled Face, Masham and Mule).

3.4.2 Grazing Preferences of Cattle

A similar analysis of cattle grazing likes and dislikes was undertaken: Box 13 lists the plants reported to be liked by cattle at least at one site and Table 35 shows recorded preferences of twenty-one individual breeds or crosses. However, preferences for four Beef Shorthorn crosses and two British White crosses were identical, suggesting they were grazing the same, or very similar, sites. These records may have distorted the number of recorded preferences for some species e.g. they account for all the records for *Agrostis* spp., *Juncus squarrosus* and *P. tremula* and six of the seven records for three other species. The legitimacy of the records is not questioned in that they are the preferences of those crosses, but their domination of some apparently strong preferences should be recognised. In the account below number of records is treated at face value.

Cattle were reported to like 37 species or other categories of vegetation (Box 13). Approximately half (18) of these were shared with the list of sheep preferences, including *B. pendula*, *C. vulgaris*, *F. excelsior*, *M. caerulea*, *P. tremula* and *T. baccata*. However, there were also species not recorded as preferred by sheep e.g. *Acer pseudoplatanus*, *J. squarrosus*, *Phragmites australis* and *Quercus* spp. This last was the most commonly recorded preference for cattle with ten citations. Some species preferred by cattle (e.g. *Bromus erectus* and *Crataegus monogyna*) were on the list of dislikes of sheep.

Over 40% of the species listed were trees or shrubs, suggesting that browsing is a potentially important aspect of the use of cattle. These preferences were amongst the most frequently recorded: as well as the oaks mentioned above, *B. pendula*, *F. excelsior*, *P. tremula* and *Salix caprea* were all frequently recorded. Amongst the Gramineae *Agrostis* spp., *J. squarrosus* and *M. caerulea* were recorded on more than five occasions. There were fewer toxic plants than on the list of sheep preferences but *T. baccata* was included.

Box 13: Plants recorded as 'liked' by at least one breed of cattle; numbers in brackets indicate number of records

- | | |
|-------------------------------------|-------------------------------------|
| 1. Aquatic plants (1) | 20. <i>Hedera helix</i> (2) |
| 2. Chalk herbs (2) | 21. <i>Juncus squarrosus</i> (6) |
| 3. Flowers (1) | 22. <i>Juniperus communis</i> (1) |
| 4. Marsh plants (3) | 23. <i>Molinia caerulea</i> (7) |
| 5. Neutral grassland (1) | 24. <i>Phragmites australis</i> (3) |
| 6. <i>Acer pseudoplatanus</i> (2) | 25. <i>Populus tremula</i> (6) |
| 7. <i>Agrostis</i> spp. (6) | 26. <i>Prunus spinosa</i> (1) |
| 8. <i>Ammophila arenaria</i> (1) | 27. <i>Quercus</i> spp. (10) |
| 9. <i>Armoracia rusticana</i> (1) | 28. <i>Rosa</i> spp. (3) |
| 10. <i>Betula pendula</i> (7) | 29. <i>Rubus fruticosus</i> (2) |
| 11. <i>Bromus erectus</i> (2) | 30. <i>Rubus idaeus</i> (1) |
| 12. <i>Calluna vulgaris</i> (7) | 31. <i>Salix caprea</i> (7) |
| 13. <i>Carex</i> spp. (3) | 32. "Seaweed" (1) |
| 14. <i>Corylus avellana</i> (2) | 33. <i>Sonchus</i> spp. (1) |
| 15. <i>Crataegus monogyna</i> (3) | 34. <i>Taxus baccata</i> (4) |
| 16. <i>Deschampsia</i> spp. (1) | 35. <i>Trifolium</i> spp. (1) |
| 17. <i>Deschampsia flexuosa</i> (1) | 36. <i>Ulex europaeus</i> (1) |
| 18. <i>Fraxinus excelsior</i> (5) | 37. <i>Urtica dioica</i> (1) |
| 19. Gramineae (3) | |

The list of preferred plants was longest for Highland cattle (Table 35) and included many of the tree and shrub species and also "seaweed". Sussex cattle also had a wide range of preferences including two species (*Armoracia rusticana* and *Rubus idaeus*) not mentioned for other breeds. Several breeds were reported to like 'marsh plants' in general.

Box 14: Plants recorded as 'disliked' by at least one breed of cattle; numbers in brackets indicate number of records

1. Coarse grass (1)
2. Marsh plants (1)
3. Scrub (3)
4. *Alnus glutinosa* (1)
5. *Atropa belladonna* (1)
6. *Betula pendula* (2)
7. *Bromus erectus* (1)
8. *Calluna vulgaris* (1)
9. *Carex* spp. (8)
10. *Chamerion angustifolium* (12)
11. *Cirsium* spp. (12)
12. *Cirsium arvense* (8)
13. *Cirsium vulgare* (1)
14. *Crataegus monogyna* (2)
15. *Cytisus scoparius* (1)
16. *Deschampsia cespitosa* (13)
17. *Elymus repens* (1)
18. *Erica* spp. (4)
19. *Erica cinerea* (6)
20. *Erica tetralix* (6)
21. Ferns (1)
22. *Glyceria maxima* (4)
23. *Juncus* spp. (12)
24. *Juncus effusus* (3)
25. Lichens (1)
26. *Ligustrum vulgare* (1)
27. *Phragmites australis* (1)
28. *Pinus* spp. (6)
29. *Pteridium aquilinum* (8)
30. *Pulicaria dysenterica* (1)
31. *Rhododendron ponticum* (6)
32. *Rosa canina* (1)
33. *Rumex* spp. (1)
34. *Salix* spp. (1)
35. *Salix alba* (1)
36. *Schoenus nigricans* (5)
37. *Senecio* spp. (1)
38. *Senecio aquaticus* (2)
39. *Senecio jacobaea* (6)
40. *Sonchus* spp. (1)
41. *Taxus baccata* (2)
42. *Ulex europaeus* (2)
43. *Urtica dioica* (1)

Table 35. Plant species ‘liked’ by various breeds of cattle: full names of species as in Box 13. Values in brackets show number of reports of the ‘preference’ if greater than one

Breed or Cross	Plant species ‘liked’
Aberdeen Angus	<i>M. caerulea</i> , <i>U. dioica</i>
Beef Shorthorn x	Neutral grassland, <i>J. communis</i>
Beef Shorthorn x Hereford	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
Beef Shorthorn x Jersey x Longhorn	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
Beef Shorthorn x British White x Friesian x Hereford	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
Beef Shorthorn x British White x Friesian	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
“Black” Hereford	Flowers
British White	<i>A. pseudoplatanus</i> , <i>F. excelsior</i> , <i>Quercus</i> spp., <i>T. baccata</i>
British White x Friesian	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
British White x Friesian x Hereford	<i>Agrostis</i> spp., <i>B. pendula</i> , <i>C. vulgaris</i> , <i>J. squarrosus</i> , <i>M. caerulea</i> , <i>P. tremula</i> , <i>Quercus</i> spp., <i>Salix caprea</i>
Devon	<i>A. pseudoplatanus</i> , <i>F. excelsior</i> , Gramineae, <i>P. australis</i> , <i>Quercus</i> spp., <i>Sonchus</i> spp., <i>T. baccata</i> , <i>Trifolium</i> spp.
Friesian	<i>A. pseudoplatanus</i> , <i>Carex</i> spp., Gramineae
Galloway x	<i>P. australis</i>
Hereford	<i>Carex</i> spp., Gramineae
Hereford x	Chalk herbs, <i>B. erectus</i>
Highland ¹	Aquatic plants, <i>A. arenaria</i> , <i>B. pendula</i> , <i>C. vulgaris</i> , <i>Carex</i> spp., <i>C. avellana</i> , <i>C. monogyna</i> (2), <i>Deschampsia</i> spp., <i>D. flexuosa</i> , <i>F. excelsior</i> , <i>H. helix</i> , <i>M. caerulea</i> , <i>P. spinosa</i> , <i>Rosa</i> spp. (2), <i>S. caprea</i> , Seaweed, <i>U. europaeus</i>
Jersey	<i>Rosa</i> spp., <i>R. fruticosus</i>
Limousin x	<i>A. pseudoplatanus</i>
Longhorn ¹	<i>C. avellana</i> , <i>C. monogyna</i> , <i>F. excelsior</i>
Red Poll	<i>A. pseudoplatanus</i> , <i>F. excelsior</i> , <i>Quercus</i> spp., <i>T. baccata</i>
Sussex	Chalk herbs, <i>A. rusticana</i> , <i>B. erectus</i> , <i>H. helix</i> , <i>Quercus</i> spp., <i>R. fruticosus</i> , <i>R. idaeus</i> , <i>T. baccata</i>

¹ Highland and Longhorn were also reported to eat “everything” and “ anything green” respectively.

Table 36. Plant species ‘disliked’ by various breeds of cattle: full names of species as in Box 14. Values in brackets show number of reports of the ‘preference’ if greater than one

Breed or Cross	Plant species ‘disliked’
Aberdeen Angus	<i>C. angustifolium</i> , <i>Rumex</i> spp., <i>S. jacobaea</i>
Aberdeen Angus x Friesian	<i>C. angustifolium</i>
Beef Shorthorn x	Marsh plants, Scrub, <i>B. erectus</i> , <i>L. vulgare</i> , <i>S. jacobaea</i>
Beef Shorthorn x Hereford	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
Beef Shorthorn x Jersey x Longhorn	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
Beef Shorthorn x British White x Friesian x Hereford	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
Beef Shorthorn x British White x Friesian	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
Belgian Blue	<i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. scoparius</i> , <i>G. maxima</i> , <i>Juncus</i> spp.
Belgian Blue x	<i>C. angustifolium</i>
Blonde d’Aquitaine	<i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. scoparius</i> , <i>G. maxima</i> , <i>Juncus</i> spp.
Blonde d’Aquitaine x	<i>C. angustifolium</i>
British White	<i>B. pendula</i>
British White x Friesian	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
British White x Friesian x Hereford	<i>E. cinerea</i> , <i>E. tetralix</i> , <i>Pinus</i> spp., <i>P. aquilinum</i> , <i>R. ponticum</i>
Charolais	<i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. scoparius</i> , <i>G. maxima</i> , <i>Juncus</i> spp.
Charolais x	<i>C. scoparius</i> , <i>Juncus</i> spp.
Charolais x Friesian	<i>C. angustifolium</i>
Devon	<i>Cirsium</i> spp., <i>P. dysenterica</i> , <i>R. canina</i> , <i>Senecio</i> spp., <i>Sonchus</i> spp., <i>U. europaeus</i>
Friesian	<i>Carex</i> spp. (2), <i>Cirsium</i> spp. (2), <i>C. arvense</i> , <i>C. scoparius</i> (2), <i>G. maxima</i> , <i>Juncus</i> spp. (2), <i>S. aquaticus</i> , <i>S. jacobaea</i>
Friesian x Hereford	<i>C. angustifolium</i> , <i>Juncus</i> spp.
Friesian x Holstein	<i>C. angustifolium</i>
Friesian x Limousin	<i>C. angustifolium</i>
Friesian x Simmental	<i>C. angustifolium</i>
Galloway x	<i>J. effusus</i> , <i>S. jacobaea</i>
Hereford	<i>Carex</i> spp., <i>C. scoparius</i> , <i>Juncus</i> spp., <i>S. aquaticus</i>
Hereford x	Scrub, <i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. vulgare</i> , <i>C. scoparius</i> , <i>Erica</i> spp., <i>Juncus</i> spp., <i>P. aquilinum</i> , <i>S. nigricans</i>
Highland	<i>A. glutinosa</i> , <i>B. pendula</i> , <i>C. vulgaris</i> , <i>C. angustifolium</i> , <i>C. monogyna</i> , <i>C. scoparius</i> , <i>E. repens</i> , <i>Erica</i> spp. (2), Ferns, <i>J. effusus</i> , Lichens, <i>P. australis</i> , <i>P. aquilinum</i> , <i>Salix</i> spp., <i>Salix alba</i> , <i>T. baccata</i> , <i>U. europaeus</i> , <i>U. dioica</i>
Holstein	<i>C. scoparius</i> , <i>Juncus</i> spp.
Jersey	<i>A. belladonna</i> , <i>S. jacobaea</i>
Limousin	<i>S. nigricans</i>
Limousin x	<i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. scoparius</i> (3), <i>D. cespitosa</i> , <i>Erica</i> spp., <i>Juncus</i> spp. (2), <i>J. effusus</i> , <i>S. nigricans</i>
Longhorn	<i>C. angustifolium</i> , <i>S. jacobaea</i> , <i>T. baccata</i>
Murray Grey	<i>S. nigricans</i>
Saler x	<i>C. angustifolium</i>
“Store” cattle	Coarse grass
Sussex	Scrub, <i>C. vulgare</i>
White Park	<i>S. nigricans</i>

A wider range (43) of species was recorded as disliked by cattle and for many species there were more records (Box 14); once again the four Beef Shorthorn and two British White crosses had identical dislikes, as did Belgian Blue, Blonde d'Aquitaine and Charolais (although these differed entirely from the dislikes of the Beef Shorthorn and British White crosses). Ten species were common to both the lists of likes and dislikes and there were some species in common with the disliked list for sheep e.g. *Cirsium* spp., *Erica* spp., *Ligustrum vulgare* and *P. aquilinum*.

The single most frequently recorded disliked species was *D. flexuosa* with 13 reports followed by *Chamerion angustifolium* with 12 reports (Table 36). *Cirsium* spp. and *Erica* spp. totalled 21 and 16 reports respectively although the latter were mainly due to the Beef Shorthorn and British White crosses. Similarly all six records for *Pinus* spp. and *Rhododendron ponticum* were for these crosses. In contrast, the six records for *S. jacobaea* were for different breeds or crosses and in total there were ten records for *Senecio* spp.

Highland cattle had the widest range of recorded dislikes (Table 36); when combined with its widest range of likes this may indicate strong grazing preferences, but greater recording effort for this widely used (in conservation grazing projects) breed cannot be discounted. The list for this breed includes ten dislikes not recorded for other breeds e.g. *A. glutinosa*, *C. vulgaris*, *Cytisus scoparius*, and *Salix alba*. Several species (e.g. *B. pendula*, *C. vulgaris*) feature on both the lists of likes and dislikes of this breed. Other breeds and crosses with relatively long lists of dislikes included Friesian, Hereford x and Limousin; *Carex* spp., *Cirsium arvense*, *D. cespitosa* and *Juncus* spp. were common to the lists of all three breeds.

3.4.3 Grazing Preferences of Goats

Goats have a strong reputation for browsing and this was supported by the preferences recorded in the questionnaire returns (Box 15, Table 37). With the exceptions of coarse grass and *Chamerion angustifolium* all the preferred plants were shrubs, trees or climbers. However, there was only one record for most species; *H. helix* and *R. fruticosus* were mentioned on three occasions each and scrub twice. With such limited data comments on differences between breeds are of limited value, but Feral English goats appeared to have a wider range of preferred species than breeds such as Golden Guernsey and "White".

Only five categories of dislikes were identified for goats (Box 16) and again these tended to support the view of goats as browsers: the only disliked shrub was *Ulex europaeus* but grasses (Gramineae) were identified twice. Data are too limited to comment on breed differences (Table 38).

Box 15: Plants recorded as ‘liked’ by at least one breed of goat; numbers in brackets indicate number of records

- | | |
|---------------------------------------|---------------------------------|
| 1. Coarse grass (1) | 8. <i>Prunus spinosa</i> (1) |
| 2. Scrub (2) | 9. <i>Quercus</i> spp. (1) |
| 3. Woody vegetation (1) | 10. <i>Rubus fruticosus</i> (3) |
| 4. <i>Chamerion angustifolium</i> (1) | 11. <i>Sambucus nigra</i> (1) |
| 5. <i>Clematis</i> sp. (1) | 12. <i>Taxus baccata</i> (1) |
| 6. <i>Crataegus monogyna</i> (1) | 13. <i>Ulex europeus</i> (1) |
| 7. <i>Hedera helix</i> (3) | |

Table 37. Plant species “liked” by various breeds of goat: full names of species as in Box 15. Values in brackets show number of reports of the ‘preference’ if greater than one

Breed or Cross	Plant species ‘liked’
Bagot	<i>Clematis</i> sp., <i>P. spinosa</i> , <i>R. fruticosus</i> , <i>U. europaeus</i>
Feral English	Coarse grass, Scrub, <i>C. angustifolium</i> , <i>Quercus</i> spp., <i>S. nigra</i> , <i>T. baccata</i>
Golden Guernsey	<i>H. helix</i>
Saanen x	Scrub, <i>C. monogyna</i> , <i>H. helix</i> , <i>R. fruticosus</i> (2)
“White”	Woody vegetation, <i>H. helix</i>

Box 16: Plants recorded as ‘disliked’ by at least one breed of goat; numbers in brackets indicate number of records

- | | |
|-----------------------------------|------------------------------|
| 1. Flowers (1) | 4. <i>Ulex europaeus</i> (1) |
| 2. Gramineae (2) | 5. <i>Urtica dioica</i> (1) |
| 3. <i>Pteridium aquilinum</i> (1) | |

Table 38. Plant species “disliked” by various breeds of goat: full names of species as in Box 16

Breed or Cross	Plant species ‘disliked’
Bagot	Gramineae, <i>U. europaeus</i>
Feral English	Flowers, <i>U. dioica</i>
Saanen x	Gramineae
“White”	<i>P. aquilinum</i>

3.4.4 Grazing Preferences of Ponies

A somewhat surprising range of 22 species etc. were identified as liked by ponies (Box 17) but the data suggested wide variations between breeds (Table 39). Unlike the other grazing species *Erica* spp. and *Juncus* spp. were in the list of preferred species and there were several trees and shrubs e.g. *C. monogyna*, *F. sylvatica*, *Quercus* spp., *Prunus* spp., *R. fruticosus* and *U. europaeus*; this last species was the most frequently recorded preference although only for three breeds. Grasses and sedges featured frequently.

Gramineae were the only recorded preference of Dartmoor and Shetland ponies whereas 13 species were recorded for Exmoor ponies. The New Forest pony had a relatively wide range of preferences and the imported Konik's preferences included a number of species not recorded for other breeds e.g. *Juncus effusus* and *P. australis*.

Fourteen species were recorded as disliked by ponies of the various breeds (Box 18); there were just four 'taxa' that appeared on both lists of likes and dislikes. The list included species identified as disliked by the other grazing species e.g. *D. cespitosa* and *P. aquilinum*. No species was frequently recorded as a dislike - *C. vulgaris* was disliked by three breeds. Apart from the species disliked by both Dartmoor and Shetland ponies, which were identical (Table 40), there were few overlaps between the breeds' dislikes.

Box 17: Plants recorded as 'liked' by at least one breed of pony; values in brackets indicate number of records

- | | |
|----------------------------------|-------------------------------------|
| 1. Coarse grass (3) | 12. <i>Juncus</i> spp. (1) |
| 2. Soft grass* (1) | 13. <i>Juncus effusus</i> (1) |
| 3. <i>Calluna vulgaris</i> (2) | 14. <i>Molinia caerulea</i> (4) |
| 4. <i>Carex</i> spp. (2) | 15. <i>Phragmites australis</i> (1) |
| 5. <i>Cirsium</i> spp. (3) | 16. <i>Prunus</i> spp. (1) |
| 6. <i>Cladium mariscus</i> (1) | 17. <i>Quercus</i> spp. (1) |
| 7. <i>Crataegus monogyna</i> (3) | 18. <i>Rubus fruticosus</i> (2) |
| 8. <i>Deschampsia</i> spp. (2) | 19. <i>Salix</i> spp. (2) |
| 9. <i>Erica</i> spp. (2) | 20. <i>Schoenus nigricans</i> (1) |
| 10. <i>Fagus sylvatica</i> (1) | 21. <i>Taraxacum hamatum</i> (1) |
| 11. Gramineae (5) | 22. <i>Ulex europaeus</i> (7) |

* It is not clear whether soft grass refers to *Holcus mollis* (creeping soft grass) or is a contrast to coarse grass; the latter is presumed

Table 39. Plant species “liked” by various breeds of pony full names of species as in Box 17. Values in brackets show number of reports of the ‘preference’ if greater than one

Breed	Plant species ‘liked’
Dartmoor	Gramineae
Exmoor ¹	Coarse grass (2), <i>C. vulgaris</i> , <i>C. monogyna</i> , <i>Deschampsia</i> spp., <i>Erica</i> spp., <i>F. sylvatica</i> , Gramineae, <i>Juncus</i> spp., <i>M. caerulea</i> , <i>Prunus</i> spp., <i>R. fruticosus</i> , <i>Salix</i> spp., <i>U. europaeus</i> (3)
Fell	Soft grass, <i>Cirsium</i> spp., <i>T. hamatum</i> , <i>U. europaeus</i>
Konik	<i>Carex</i> spp., <i>Cirsium</i> spp., <i>C. monogyna</i> , Gramineae, <i>J. effusus</i> , <i>P. australis</i> , <i>R. fruticosus</i> , <i>Salix</i> spp.
New Forest	Coarse grass, <i>C. vulgaris</i> , <i>Cirsium</i> spp., <i>C. monogyna</i> , <i>Deschampsia</i> spp., <i>Erica</i> spp., <i>M. caerulea</i> (3), <i>Quercus</i> spp., <i>U. europaeus</i> (3)
Shetland	Gramineae
Welsh Section A	<i>Carex</i> spp., <i>C. mariscus</i> , Gramineae, <i>S. nigricans</i>

¹ Exmoor ponies were also described as liking “everything”

Box 18: Plants recorded as ‘disliked’ by at least one breed of pony; values in brackets indicate number of records

- | | |
|-------------------------------------|------------------------------------|
| 1. Flowers (2) | 8. <i>Juncus</i> spp. (1) |
| 2. Scrub (1) | 9. <i>Juncus effusus</i> (1) |
| 3. <i>Alnus glutinosa</i> (1) | 10. <i>Pteridium aquilinum</i> (2) |
| 4. <i>Betula pendula</i> (1) | 11. <i>Sambucus nigra</i> (1) |
| 5. <i>Brachypodium pinnatum</i> (2) | 12. <i>Senecio jacobaea</i> (1) |
| 6. <i>Calluna vulgaris</i> (3) | 13. <i>Thymus serpyllum</i> (1) |
| 7. <i>Deschampsia cespitosa</i> (1) | 14. <i>Ulex</i> spp. (2) |

Table 40. Plant species “disliked” by various breeds of pony: full names of species as in Box 18

Breed	Plant species ‘disliked’
Dartmoor	Flowers, <i>C. vulgaris</i> , <i>P. aquilinum</i> , <i>Ulex</i> spp.
Exmoor	<i>B. pendula</i> , <i>B. pinnatum</i> , <i>C. vulgaris</i> , <i>Juncus</i> spp.
Fell	<i>S. jacobaea</i> , <i>T. serpyllum</i>
Highland	<i>D. cespitosa</i> , <i>J. effusus</i>
Konik	<i>A. glutinosa</i>
New Forest	<i>B. pinnatum</i> , <i>S. nigra</i>
Shetland	Flowers, <i>C. vulgaris</i> , <i>P. aquilinum</i> , <i>Ulex</i> spp.
Welsh Section A	Scrub

3.4.5 Grazing Preferences in relation to Gender

There were few records that allowed comparison between the grazing likes and dislikes of males, females and castrates. Even when differences were recorded it is not always possible to determine whether these compared individuals grazing the same site or compartment, at the same time of year etc. However as a start to identifying differences in grazing preferences between genders the records submitted in response to the questionnaire are detailed below.

Amongst sheep breeds the following differences were recorded:

- **Berrichon du Cher:** *A. glutinosa*, *B. pendula*, *Carex* spp., *Deschampsia* spp., *M. caerulea*, Orchidaceae, *P. arundinacea*, *Salix* spp. and *Succisa pratensis* were liked by females, but only *S. pratensis* was listed for wethers (no records for entire males).
- **Beulah Speckled Face:** scrub, *H. helix*, *R. fruticosus* and *U. dioica* were common to males, females and wethers; ‘flowers’ and *Festuca* spp. were additional preferred plants for females and wethers. Polygonaceae and *S. jacobaea* were recorded for wethers only.
- **Exmoor Horn:** only ‘coarse grass’ was recorded as a preference of males and females; *C. vulgaris*, *M. caerulea*, *Pinus* spp., sweet grass, and *U. europaeus* were listed for females only.
- **Hebridean:** *Deschampsia flexuosa* and *M. caerulea* were the only liked plants common to males, females and wethers. Males and females also shared *B. pendula*, *Helianthemum nummularium*, *Juncus* spp., *R. fruticosus* and *Thymus serpyllum*. *A. glutinosa*, *Carex* spp., *Deschampsia* spp., *Festuca* spp., *J. effusus*, Orchidaceae, *P. arundinacea*, *P. tremula*, *Quercus* spp. and *Salix* spp. were recorded for females only.
- **Jacob:** males, females and wethers shared *A. rusticana*, *H. helix* and *T. baccata* whereas *C. vulgaris* and *R. fruticosus* were recorded for wethers only.
- **Manx Loghtan:** males and females liked *Festuca* spp. and *H. non-scriptus* but *Cirsium* spp., *Cornus sanguinea*, *F. excelsior* and *H. helix* were recorded for females only.
- **Rough Fell:** coarse grass was shared by males and females but ‘crops’ were a female-only delicacy!
- **Soay:** males and wethers shared the females’ like of *Dactylis glomerata* and *Epipactis* spp. but *B. pinnatum*, *S. jacobaea* and woody vegetation were only recorded as preferences of females.
- **Welsh Mountain:** coarse grass and Gramineae were shared by males and females; *Armeria maritima* and *C. vulgaris* were recorded for females only.

Where records for males (including wethers) and females are available it may be worthwhile noting the breeds and crosses for which no differences were recorded between the sexes:

Beulah Speckled Face x Suffolk, Black Welsh Mountain, Hebridean x Berrichon du Cher, Herdwick, Southdown and Southdown x Jacob.

Amongst cattle the following differences were recorded:

- **Beef Shorthorn x:** *Juniperus communis* was a shared preference but neutral grassland was only recorded for females.
- **Friesian:** 'marsh plants' were recorded for females only.
- **Galloway x:** *P. australis* was recorded for males only.
- **Highland:** *Ammophila arenaria*, *Carex* spp., *C. monogyna* and *Rosa* spp. were liked by males, females and steers. *B. pendula*, *Corylus avellana*, *Deschampsia* spp., *F. excelsior*, *M. caerulea*, *S. caprea* and seaweed were liked by both males and females. *D. flexuosa* and *U. europaeus* were recorded as preferred plants for males only, whereas aquatic plants, *H. helix* and *P. spinosa* were recorded for females only. Females and steers shared *C. vulgaris*.
- **Limousin x:** 'marsh plants' were recorded for females only.

No difference between the sexes was recorded for **Aberdeen Angus, Beef Shorthorn x Hereford** (and the other named **Beef Shorthorn** crosses), **'Black Hereford'**, **British White** (and the named **British White** crosses), **Devon, Friesian, Hereford x, Jersey, Longhorn, Red Poll** and **Sussex**.

For ponies the differences recorded were:

- **Dartmoor and Shetland:** 'Gramineae' was recorded for females only
- **Exmoor:** *Fagus sylvatica*, Gramineae, *Juncus* spp., *Prunus* spp. and *Salix* spp. were all recorded as liked by females only; the other eight preferences were recorded for geldings only. (There were no records for entire males).
- **New Forest:** males, females and geldings shared *Cirsium* spp., *M. caerulea*, *Quercus* spp., and *U. europaeus*. Coarse grass and *C. monogyna* were shared by males and females whereas *C. vulgaris*, *Deschampsia* spp. and *Erica* spp. were noted for geldings only.

No differences between males' and females' preferences were recorded for **Konik and Welsh Section A** ponies. No differences in grazing preferences were recorded for male and female **Bagot, Feral English** and **'White'** goats and the records for **Berkshire** pigs refer to females only.

3.4.6 Grazing 'Dislikes' in relation to Gender

A similar analysis of the plants recorded as disliked by the various breeds may be undertaken, but with the same cautions as were applied to recorded preferences.

- **Berrichon x:** *M. caerulea* was recorded for females only.
- **Beulah Speckled Face:** *B. pinnatum*, *Holcus lanatus* and 'woody growth' were disliked by males, females and wethers. *B. erectus*, *C. monogyna*, *R. canina* and scrub were disliked by females and wethers; ewes also disliked *Brachypodium sylvaticum*, *Juncus* spp. and 'coarse grass'.
- **Black Welsh Mountain:** *Echium vulgare* was disliked by males and females but females also disliked *Cirsium* spp.
- **Dorset:** *B. pinnatum* and scrub were recorded for females only.
- **Exmoor Horn:** *B. pinnatum* was disliked by males and females but females also disliked *Erica* spp.
- **Hebridean:** *C. vulgaris*, *Pinus* spp. and *U. dioica* were disliked by males, females and wethers. Males and females also shared a dislike of *Arctium* spp., *Iris foetidissima* and *Pinus sylvestris*. Coarse grass, *Cirsium* spp., *M. caerulea* and *R. canina* were recorded as disliked by females only.
- **Herdwick:** males and females shared dislikes of coarse grass and 'moss', but wethers disliked *C. arvense* and *Cirsium vulgare*.
- **Manx Loghtan:** *H. lanatus* was disliked by males and females but females also disliked *O. vulgare*.
- **Rough Fell:** *B. pinnatum* was disliked by males and females but females also disliked 'rank grass'.
- **Scottish Blackface:** *D. cespitosa*, *J. effusus* and *M. caerulea* were listed for females only but *N. stricta* was recorded for wethers only.
- **Soay:** males, females and wethers disliked *Calamagrostis epigeios*, *Pulicaria dysenterica* and *Salix* spp. Females also disliked *Agrostis capillaris* and *H. lanatus*.
- **Southdown:** males, females and wethers disliked *Bromus hordeaceus* and *O. vulgare*. Females also disliked *D. cespitosa* and *Juncus* spp.
- **Texel:** coarse grass was recorded for males only.
- **Welsh Mountain:** *B. pinnatum* was disliked by males and females but females also disliked 'rank grass'; females and wethers disliked *E. vulgare*.

Those breeds and crosses exhibiting similar dislikes in males (including wethers) and females were: **Beulah Speckled Face x Suffolk, Hebridean x Berrichon du Cher, Jacob, Leicester Longwool x, Scottish Halfbred, Southdown x Jacob and Wiltshire Horn.**

Amongst cattle the following differences were recorded:

- **Aberdeen Angus:** *Cirsium* spp., *Rumex* spp. and *S. jacobaea* were recorded for females only.
- **Beef Shorthorn x:** marsh plants and scrub were recorded as disliked by females; *B. erectus*, *L. vulgare* and *S. jacobaea* were disliked by both males and females.
- **British White:** *B. pendula* was recorded as disliked by females and steers only.
- **Friesian:** *C. arvense*, *C. vulgare* and *S. jacobaea* were recorded for females only.
- **Galloway:** *J. effusus* and *S. jacobaea* were recorded for males only.
- **Hereford x:** females disliked *Schoenus nigricans* as well as the *C. monogyna* and scrub disliked by males and steers.
- **Highland:** *C. angustifolium*, *Erica* spp., *S. alba*, ferns and lichens were recorded as disliked by males, females and steers. Males and females shared a dislike of *C. vulgaris*, *Cirsium* spp., *T. baccata*, *U. europaeus* and *U. dioica*. Females were recorded as avoiding *A. glutinosa*, *B. pendula*, *C. scoparius*, *D. cespitosa*, *J. effusus*, *P. australis*, *P. aquilinum* and *Salix* spp.
- **Limousin x:** males and females shared a disliking for *D. cespitosa*, *Juncus* spp. and *J. effusus* but females also disliked *Elymus repens* and *S. nigricans*.
- **White Park:** *S. nigricans* was recorded for females only.

Breeds demonstrating similar dislikes in males (entire and castrated) and females were: **Beef Shorthorn x Hereford** (and other named **Beef Shorthorn** crosses), named **British White** crosses), **Charolais x, Friesian x Limousin, Jersey, Longhorn, 'Store' cattle and Sussex.**

No plants were recorded as disliked by pigs and male and female **Bagot, Feral English** and **'White'** goats showed no differences in their dislikes. For ponies the following differences were recorded:

- **Dartmoor and Shetland:** *C. vulgaris*, 'Flowers', *P. aquilinum* and *Ulex* spp. were recorded for females only.
- **Exmoor:** geldings disliked *B. pinnatum* but *B. pendula*, *C. vulgaris* and *Juncus* spp. were disliked by females.

- **New Forest:** males, females and geldings disliked *Sambucus nigra* and males and females shared a dislike of *B. pinnatum*.

Konik and Welsh Section A males and females had the same dislikes.

3.4.7 Grazing Preferences in relation to Age

The data on differences in grazing preferences in animals of different ages are probably even less reliable than for differences between sexes as, in addition to the problems arising from comparisons of different sites and seasons, most sites run flocks or herds of mixed ages and site managers do not normally have the time to watch the grazing behaviour of individual animals. It is also probable that age-related differences are only apparent for three stages in the life history - juvenile animals, adult animals and geriatric adults. No detailed analysis was undertaken therefore; instead the following notes are again given to stimulate debate and research and utilise only breeds for which data for more than one age class (excluding 'various' and 'ageing') are available.

- **Beulah Speckled Face:** 'flowers' and *Festuca* spp. were recorded as liked by animals of 6-10 years whereas *H. helix*, Polygonaceae, *R. fruticosus*, scrub, *S. jacobaea* and *U. dioica* were recorded for 1-5 year animals. This latter group disliked 'woody vegetation', *B. erectus*, *C. monogyna* and *Juncus* spp. but 6-10 year old animals were recorded as disliking scrub, *B. pinnatum*, *B. sylvaticum* and *R. canina*. Beulahs over 10 years old also disliked *B. pinnatum* and *H. lanatus*.
- **Exmoor Horn:** ageing sheep liked *C. vulgaris*, *M. caerulea*, *Pinus* spp., sweet grass and *U. europaeus* but 'disliked' *Erica* spp. Coarse grass was only favoured by 1-5 year old animals which did not like *B. pinnatum*.
- **Hebridean:** *B. pendula*, *J. effusus*, *P. tremula*, *Quercus* spp. and *R. fruticosus* were liked by 1-5 year old sheep but of these species only *B. pendula* was also recorded for 5-10 and >10 year old animals. *M. caerulea* was listed only for 5-10 and >10 year olds. *C. vulgaris* was recorded as a dislike of both 1-5 and >10 year old animals but the former also disliked 'coarse grass' and *M. caerulea*.
- **Jacob:** *A. rusticana*, *H. helix* and *T. baccata* were liked by 1-5 year animals whereas *C. vulgaris* and *R. fruticosus* were favoured by 'ageing' sheep.
- **Manx Loghtan:** *Cirsium* spp., *F. excelsior*, *H. helix* and *C. sanguinea* were recorded as liked by 5-10 year old sheep only.
- **Southdown and Southdown x Jacob:** *A. rusticana*, *H. helix* and *T. baccata* were recorded as liked by 1-5 year old sheep only.
- **Suffolk x:** Polygonaceae and *S. jacobaea* were liked by 5-10 year old sheep only.
- **Swaledale:** *D. maculata* was liked by 1-5 year old animals only.

- **Welsh Mountain:** coarse grass and Gramineae were recorded as preferred by 1-5 year animals whereas *A. maritima* and *C. vulgaris* were recorded for 6-10 year animals.

Amongst cattle the following age related preferences were noted:

- **Aberdeen Angus:** *Cirsium* spp., *Rumex* spp. and *S. jacobaea* were disliked by 1-5 year olds.
- **Beef Shorthorn:** 5-10 year old cattle liked neutral grassland whereas 1-5 year olds liked *J. communis*.
- **Beef Shorthorn x:** 1-5 year olds did not like *B. erectus*, *L. vulgare* or *S. jacobaea* whereas 6-10 year olds avoided 'marsh plants' and scrub.
- **Belgian Blue x and Blonde d'Aquitaine x:** *Cirsium* spp. was disliked by 1-5 year olds.
- **British White:** *A. pseudoplatanus*, *F. excelsior*, *Quercus* spp. and *T. baccata* were favoured by 1-5 year old animals.
- **Friesian:** 'Marsh plants' were given as a preference for 1-5 year old animals only whereas 6-10 year olds avoided *C. arvense*, *C. vulgare* and *S. jacobaea*.
- **Galloway:** *P. australis* was given as a preference for 1-5 year old animals only.
- **Highland:** aquatic plants, *A. arenaria*, *Carex* spp., *C. avellana*, *C. monogyna*, *F. excelsior*, *Rosa* spp., *S. caprea* and 'seaweed' were liked by 1-5 year cattle whereas *B. pendula*, *Deschampsia* spp. and *M. caerulea* were liked by the 6-10 year age class and *D. flexuosa*, *H. helix*, *P. spinosa*, *Rosa* spp. and *U. europaeus* were liked by animals over 10 years of age. *C. vulgaris*, *Erica* spp. and *U. europaeus* were disliked by 6-10 year old animals; *A. glutinosa*, *B. pendula*, *Cirsium* spp., *C. scoparius*, *Erica* spp., *P. australis*, *P. aquilinum*, *Salix* spp., *S. alba* and *U. dioica* were recorded as disliked by 1-5 year old animals.

Age related preferences for ponies were:

- **Dartmoor:** Gramineae recorded as liked and 'Flowers', *C. vulgaris*, *P. aquilinum* and *Ulex* spp. as 'disliked' by 5-10 year olds only.
- **Exmoor:** coarse grass, *F. sylvatica*, Gramineae, *Juncus* spp., *Prunus* spp., *R. fruticosus*, *Salix* spp. and *U. europaeus* were preferred by 1-5 year old ponies; 6-10 year old ponies also liked coarse grass and *U. europaeus* but the only other preference recorded was for *C. monogyna*. *B. pendula* and *C. vulgaris* were disliked by 1-5 year old animals whereas *B. pinnatum* was only recorded as disliked by animals in the 6-10 year age class.

- **New Forest:** *U. europaeus* was liked by all age groups but *M. caerulea* was only recorded for 1-5 and 6-10 year olds. 1-5 year olds also liked *Cirsium* spp., whereas *C. vulgaris*, *Deschampsia* spp., and *Erica* spp. were listed as liked by 6-10 year olds and coarse grass and *C. monogyna* were given for >10 year old ponies. *S. nigra* was disliked by young (1-5 year) ponies but *B. pinnatum* was the only recorded dislike of older (11-20 year) animals.
- **Welsh Section A:** *Carex* spp., *Cladium mariscus*, Gramineae and *S. nigricans* were recorded as preferred species for 5-10 year olds only but scrub was not liked by this age group.

3.5 Out-wintering, Grazing Period and Supplementary Feeding

3.5.1 Out-wintering of Stock

The vast majority (94%) of sheep flocks used on conservation sites were out-wintered (Table 41) although information was not available for 25 flocks. The five flocks that were not out-wintered belonged to five different breeds; all these breeds except the Hampshire Down (for which only one flock was recorded in the survey) also had out-wintered examples.

For cattle 78% of herds were out-wintered (Table 42); of those in-wintered just under half the breeds also had out-wintered examples and for five of the remaining breeds there was only one herd recorded in the survey. However, it is noticeable that all the breeds and crosses in-wintered were 'continental' with the exception of one Jersey and one South Devon herd. In-wintering may not be a reflection on a breed's hardiness but a means to avoid damage to sensitive vegetation particularly from poaching. There was no information recorded on out- or in-wintering for 31 cattle herds.

All the goat flocks for which information was given were out-wintered; there was no information for two flocks (one Saanen x and the "White" flock). All but one of the 23 pony herds were out-wintered; the exception was a Shetland pony herd (Table 43). There was no information for six pony herds. The Berkshire pigs were out-wintered, the Gloucester Old Spot were in-wintered.

Table 41. Out-wintering of sheep used for grazing by breed; values indicate number of sites

Breed or Cross	Out-wintered	Not out-wintered
Beulah Speckled Face	10	
Beulah Speckled Face x	1	
Beulah Speckled Face x Welsh Mule	1	1
Black Welsh Mountain	2	
Bleu du Maine x Cheviot	1	
Bleu du Maine x Lleyn	1	
Bleu du Maine x Mule	1	
Derbyshire Gritstone	1	
Dorset	1	1
Exmoor Horn	1	
Hampshire Down		1
Hebridean	13	1
Herdwick	3	
Jacob	3	
Lleyn	2	
Manx Loghtan	3	
Masham	1	
Mule	2	
Northumberland Blackface	1	
Rough Fell	1	
Scottish Blackface	2	
Scottish Blackface x	1	
Scottish Halfbred	1	
Scottish Halfbred x Suffolk		1
Shetland	1	
Soay	4	
Southdown	3	
Southdown x Jacob	1	
Suffolk	2	
Suffolk x	1	
Swaledale	2	
Teeswater	1	
Texel	2	
Texel x	1	
Welsh Mountain	4	
Welsh Mountain x	1	
Wiltshire Horn	2	
Number of Flocks	78	5
Percentage of Total	94	6

Table 42. Out-wintering of cattle used for grazing by breed; values indicate number of sites

Breed or Cross	Out-wintered	Not Out-wintered
Aberdeen Angus	1	1
Aberdeen Angus x Friesian	1	
Beef Shorthorn	1	
Beef Shorthorn x	2	1
Beef Shorthorn x Hereford	1	
Beef Shorthorn x Jersey x Longhorn	1	
Beef Shorthorn x British White x Friesian x Hereford	1	
Beef Shorthorn x British White x Friesian	1	
Belgian Blue		1
Belgian Blue x	1	
“Black” Hereford	1	
Blonde d’Aquitaine		1
Blonde d’Aquitaine x	1	
British White	4	
British White x Friesian	1	
British White x Friesian x Hereford	1	
Charolais		1
Charolais x	1	
Charolais x Friesian	1	
Charolais x Simmental		1
‘Continental’ x		2
Devon	2	
Devon x		1
Dexter	1	
Friesian	4	3
Friesian x	1	1
Friesian x Hereford	3	
Friesian x Holstein	1	
Friesian x Limousin	1	
Friesian x Simmental	1	
Galloway x	3	
Hereford	1	
Hereford x	3	2
Highland	10	
Holstein	1	1
Jersey		1
Limousin	1	
Limousin x	4	1
Longhorn	4	
Murray Grey	1	
Red Poll	2	
Saler	1	
Saler x	1	
Shetland	1	

Simmental x	1	1
South Devon		1
Sussex	2	
Welsh Black	1	
White Park	2	
Number of Herds	73	20
Percentage of Total	78	22

Table 43. Out-wintering of ponies used for grazing by breed; values indicate number of sites

Breed or Cross	Out-wintered	Not Out-wintered
Dartmoor	2	
Exmoor	7	
Fell	1	
Highland	1	
Konik	1	
New Forest	4	
Shetland	2	1
Welsh Section A	5	
Number of Herds for Ponies	23	1
Percentage of Total	96	4

3.5.2 Grazing Period and Access to Lay-back Land

A complex question with numerous variations (see Appendix 2, question 19) attempted to determine which months each breed grazed the conservation area and, if they were not present all year, where they were (e.g. on lay-back land). Responses were further complicated by differences in grazing patterns between compartments or between the different species of livestock used on individual sites. In total information was obtained for 150 site/species combinations.

In response to the primary question on the period of grazing of the conservation areas of the site a total of 56 variations were recorded (Figure 10) ranging from year-round grazing on 37 sites to as little as two months (e.g. February-March). The only other pattern of grazing used on more than ten sites was May - October, and then only on 11 sites. Of the 56 patterns of grazing 32 were used on only one site, reflecting the individual nature of sites and their management.

The variety of grazing patterns makes even a simple classification into seasons difficult. However the grazing periods, with the number of sites, may be described as follows:

- Spring 3
- Summer 10
- Autumn 8
- Winter 7
- Spring/Autumn 2
- Spring/Summer 8
- Summer/Autumn 49
- Spring/Summer/ Autumn 1
- Summer/Autumn/Winter 6
- Autumn/Winter 12
- Autumn/Winter/Spring 2
- Spring/Winter 1
- All Year 37
- Others 4.

Clearly summer/autumn grazing is most frequent with almost a third of site/species combinations using this period. Tables 44 - 46 show the grazing periods for each breed for which information was available. Thus Berrichon du Cher were grazed all year round (Table 44) whereas Aberdeen Angus x Friesian (Table 45) were grazed from April to December. Information on grazing periods for goats was sparse: Bagot, Feral English and "White" grazed all year round, Cashmere June - October, Golden Guernsey March - December and Saanen x at one site from October - December. There was no information on Gloucester Old Spot but Berkshire pigs grazed from September - December.

In response to the question 'Which months do your animals have access to lay-back land?' 91% of replies were 'Not applicable/No response'; assuming that the response rate was similar to other questions in this section it appears that availability of lay-back land was not common. The ability to remove stock when the conservation objective has been achieved, or when damage to the vegetation is imminent, or when stock welfare demands, is a crucial element in many grazing schemes. It is made more difficult by the understandable reluctance, or inability, of conservation agencies to buy or rent land with little or no conservation value merely as lay-back land. The establishment of regional grazing schemes may go some way to alleviating such problems as stock can be moved from site to site in an integrated system.

Of the responses indicating that lay-back land was used all periods were recorded at just one site except January-December (i.e. all year round) at two sites. In these instances it is not clear whether the stock had continuous access to lay-back land as well as to the conservation area or whether they could be moved to the lay-back land when necessary. The periods when lay-back land was available were:

- | | |
|---------------------------------|----------------------|
| 1. January - December (2 sites) | 6. May - September |
| 2. February - September | 7. June - September |
| 3. March - September | 8. July - November |
| 4. March - May and September | 9. September |
| 5. May - October | 10. December - March |

The availability of lay-back land to the various breeds is shown in Tables 44 - 46. Lay-back land was not available to any goat or pig breed.

An alternative to lay-back land on the site is to transfer the stock to lay-back land elsewhere when weather conditions, vegetation quality/quantity or stock health so require; 99 (78.6%) site/stock combinations were in the 'No response/not applicable' category for the question asking for which months stock were removed to lay-back land. The remaining 27 site/stock combinations had a wide variety of periods when stock were transferred to lay-back land (all for one site unless otherwise stated):

- | | |
|--------------------------------|--|
| 1. January - August (2 sites) | 11. October - March |
| 2. January - September | 12. October - April (3 sites) |
| 3. March - April and September | 13. October - May |
| 4. March - October | 14. November - April (3 sites) |
| 5. April - May | 15. November - March (2 sites) |
| 6. April - May and November | 16. December - April |
| 7. April - August | 17. December - March (2 sites) |
| 8. April - December | 18. December - March and June - August |
| 9. July - August | 19. December - February |
| 10. September - May | 20. January - February and May - July |

Data on periods when stock of the various breeds were transferred off the site is also shown in Tables 44 - 46. There was no information on transfer of goats and for pigs only Berkshire were transferred (from January - August).

Respondents were also asked whether the animals were removed in severe weather; 109 (87.9%) gave no response or stated that removal was not applicable to their site. For the remaining 15 sites severe weather may include summer months, presumably through heat, drought or the insects associated with the summer season. Periods of removal for severe weather were (all for one site unless stated):

- | | |
|---------------------------------|---------------------------|
| 1. April and December (2 sites) | 8. November (2 sites) |
| 2. May and November | 9. November - March |
| 3. May and October | 10. November and December |
| 4. June - September | 11. December |
| 5. August - October | 12. December - April |
| 6. September - November | 13. December - January |
| 7. October | |

Data for removal for severe weather for the various breeds has also been included in Tables 44 - 46. There was no information on removal of goats or pigs.

Figure 10. Periods of grazing (shaded areas); the number of sites using each period is shown

Period No.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Number of Sites
1	Shaded	37											
2	Shaded	Shaded	Shaded										1
3		Shaded	Shaded										1
4	Shaded		Shaded	1									
5			Shaded	1									
6			Shaded		Shaded	1							
7			Shaded		Shaded	1							
8			Shaded		Shaded	4							
9			Shaded	Shaded	Shaded	Shaded							1
10				Shaded	3								
11				Shaded	7								
12				Shaded	9								
13				Shaded		Shaded	2						
14				Shaded	Shaded	Shaded							1
15					Shaded	1							
16					Shaded	3							
17					Shaded	11							
18					Shaded	3							
19					Shaded	2							
20	Shaded	Shaded			Shaded	1							
21						Shaded	2						
22						Shaded	6						
23						Shaded	4						
24						Shaded	1						
25	Shaded	Shaded	Shaded			Shaded	1						
26						Shaded	2						
27						Shaded	2						
28						Shaded	2						
29						Shaded	1						
30	Shaded	Shaded				Shaded	3						
31	Shaded	Shaded	Shaded			Shaded	1						
32							Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	1
33							Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	1
34							Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	1
35							Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	1
36							Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	3
37	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded			Shaded	Shaded	Shaded	Shaded	1
38	Shaded	Shaded	Shaded	Shaded					Shaded	Shaded	Shaded	Shaded	1
39	Shaded	Shaded	Shaded						Shaded	Shaded	Shaded	Shaded	1
40	Shaded	Shaded							Shaded	Shaded	Shaded	Shaded	1
41									Shaded	Shaded	Shaded	Shaded	2
42									Shaded	Shaded	Shaded	Shaded	1
43	Shaded								Shaded	Shaded	Shaded	Shaded	2
44	Shaded	Shaded							Shaded	Shaded	Shaded	Shaded	1
45	Shaded	Shaded	Shaded						Shaded	Shaded	Shaded	Shaded	3
46	Shaded	Shaded	Shaded	Shaded	Shaded				Shaded	Shaded	Shaded	Shaded	1
47									Shaded	Shaded	Shaded	Shaded	1
48	Shaded	Shaded							Shaded	Shaded	Shaded	Shaded	2
49	Shaded	Shaded	Shaded						Shaded	Shaded	Shaded	Shaded	3
50	Shaded	Shaded	Shaded			Shaded	1						
51				Shaded	Shaded				Shaded	Shaded	Shaded	Shaded	2
52	Shaded	Shaded		Shaded	1								
53			Shaded	1									
54				Shaded	1								
55			Shaded	Shaded			Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	1
56	Shaded	Shaded				Shaded	Shaded			Shaded	Shaded	Shaded	1

Table 44. Grazing periods, availability of lay-back land, transfer of stock to lay-back land and removal of stock in severe weather for various sheep breeds; numbers refer to months (e.g. 3-12 = March to December; 5-2 = May to February; 1-12 = all year etc.). Numbers in brackets indicate frequency with which that period was recorded if greater than one.

Breed or Cross	Grazing Periods	Lay-back Available	Stock Transferred	Stock Removed
Berrichon du Cher x	1-12			
Beulah Speckled Face	1-12(6), 3-12, 5-2, 9-2, 11-2, 4-5+9-11	1-12, 3-9, 6-9, 12-3	3-10	9-11
Beulah Speckled Face x	10-3			
Beulah Speckled Face x Suffolk	1-12			
Beulah Speckled Face x Welsh Mule	1-12, 6-9			
Black Welsh Mountain	7-4, 11-3	1-12		
Bleu du Maine x Cheviot	1-12			
Bleu du Maine x Lleyn	1-12			
Bleu du Maine x Mule	1-12			
Cheviot	4-11			
Derbyshire Gritstone	6-8			11-12
Dorset	3-9, 4-11	3-9	12-3	
Exmoor Horn	4-10, 5-8+10-2		3-4+9, 11-3	
Hampshire Down	4-11		12-3	
Hebridean	1-12(3), 4-11, 4-6, 5-9(2), 5-8, 6-10, 6-9, 8-9, 10-12, 10-2, 11-3, 4-7+9-10, 6-7+11-2	3-9	4-12, 10-4, 10-5	
Hebridean x Berrichon du Cher	10-2			
Herdwick	1-12(2)			
Jacob	1-12, 7-9			
Kent	7-12			
Leicester Longwool x	5-8+10-2		3-4+9	
Lleyn	1-12(2)		4-8	11-3
Manx Loghtan	1-12(2), 3-4+8-12		1-2+5-7	
Masham	1-12, 3-10	3-9		

Breed or Cross	Grazing Periods	Lay-back Available	Stock Transferred	Stock Removed
Mule	6-11, 7-12	3-9		11-12
Northumberland Blackface	6-10+12-3		4-5+11	
Rough Fell	1-12, 9-3			
Scottish Blackface	1-12, 4-10			
Scottish Blackface x	6-10			
Scottish Halfbred	1-12, 10-12			
Scottish Halfbred x Suffolk	1-12, 3-9			
Shetland	1-12			
Soay	1-12(3), 3-9			
Southdown	1-12, 2-3			
Suffolk	1-12(2), 6-11			
Suffolk x	3-12			
Swaledale	7-12, 9-3, 10-1	2-9		11-12
Teeswater	1-12			
Texel	1-12, 6-11			
Texel x	2-3			
Welsh Mountain	1-12, 7-2, 7-4, 10-1, 10-3	1-12		
Welsh Mountain x	1-12	6-9		
Wiltshire Horn	1-12(2)	6-9		