THE INPUT AND EFFECTS OF BROWSE IN THE DIET OF FARMED FALLOW DEER
(Dama dama)

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Fallow deer are classed as 'Intermediate' feeders according to their digestive physiology (Hoffman 1973) and are capable of digesting browse material. Jackson (1977) showed that browse comprised 57% of the annual diet of free ranging wild fallow in the New Forest in England. In farming situations they seldom have access to browse material, even though they have the digestive capacity to effectively utilise it, but they have been seen to seek out browse material in situations with abundant and high quality pasture.

A pilot study was undertaken to compare growth in fallow deer fed rations containing browse, with pasture-fed fallow deer. Browse is the collective name given to fodder trees and other foliage of a non-pasture nature. Sheoak (Casuarina cunninghamiana) (CAS) and Tagasaste or Tree Lucerne (Chamaecytisus palmensis) (TAG), were incorporated into a ration containing oats and lucerne at the rate of 25% (w/w) and fed ad lib. to 10 months old castrated fallow deer bucks. The deer (n=6) were ear-tagged, vaccinated and randomly assigned to each of two feed treatments (n=3 per treatment). All deer were housed individually in pens eight metres square with sawdust flooring and ad lib. access to fresh water, and fed for a period of 22 days. They were weighed at trial commencement and after completion, when they were slaughtered for human consumption. The growth rate of the trial deer being fed browse rations was compared with that of the castrated fallow bucks of the same age grazing ryegrass / kikuyu pasture.

The browse rations and pasture were analysed for fibre (ADF and NDF), nitrogen and crude protein (CP), total phenolic compounds (TPC) and condensed tannins (CT). The TAG ration contained 10.7MJ ME/kg DM and 12.3% CP; the CAS ration contained 10.3MJ ME/kg DM and 12.0% CP. The ryegrass / kikuyu pasture contained 12.2MJ ME/kg DM and 24.9% CP. The CAS ration contained 2.3 g TPC and 2.6 g CT per 100 g DM, and the TAG ration contained 1.4 g TPC and 2.4 g TC per 100 g DM.

Tannins and phenolic compounds are classified as ‘antinutrients’, having effects on N metabolism in ruminants through suppressing microbial activity thus lowering the digestibility of the feed material and limiting gut fill (Woodward and Reed 1989). The presence of these compounds in the browse rations did not appear to adversely affect digestibility, in vivo DMD for the TAG and CAS rations being 68.8% and 71.3% respectively. Feed intake also appeared to be unaffected, individual DM intakes ranging from 1.4kg/day to 1.8kg/day. Two-stage in vitro digestion was undertaken after animal slaughter using inoculum from each feed type with each feed sample. These results were lower than in vivo DMD. Digestibility for TAG, CAS and the control were 63.0%, 54.9% and 65.2% respectively.

The deer fed Casuarina and Tagasaste increased in liveweight at an average 113g/day and 121g/day respectively, while the deer fed on pasture increased in liveweight at an average of 173g/day. The effects of browse intake on digestive physiology were also examined. There were no significant variations in rumen microbial numbers and species, rumen papillation density or omasal laminae between the browse and pasture-fed animals. It is concluded that certain browse species could be used to sustain growth in farmed fallow deer during periods of pasture feed shortage.

