Selective grazing of *Lolium perenne* and *Plantago lanceolata* by growing European wild boar (*Sus scrofa* L.) in a semi-extensive system

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**Abstract**

In Chile, European wild boar are most commonly produced in a semi-extensive system with access to pastures for grazing. These pastures normally have a very heterogeneous botanical composition. The objective of the study was to determine whether grazing European wild boar select between the grass species *L. perenne* and the broadleaf species *P. lanceolata*. Four transects were marked in each of three areas of a pasture containing predominantly *L. perenne* cv. Arrow AR1 and *P. lanceolata* cv. Tonic. A total of 15 tillers from *L. perenne* and 15 *P. lanceolata* plants were marked along each transect. Male pure-bred European wild boar (n = 18) with nose-rings and an average bodyweight of 11.2±0.25 kg (mean±SEM) grazed the areas during the evaluation days. For the marked tiller or plant, each leaf length was measured and the dry matter content estimated pre- and post-grazing, with a difference between the measurements pre- and post-grazing demonstrating that grazing had occurred for that leaf. Each transect was evaluated daily for a total of three days. The study was carried out in Summer and repeated in Autumn. The probability of being grazed was significantly greater for the marked *P. lanceolata* plants than for the *L. perenne* tillers in both Summer and Autumn (P < 0.01). The quantity of dry matter consumed from each grazed plant was also notably greater for *P. lanceolata* plants than for the *L. perenne* tillers in both Summer (P < 0.01) and Autumn (P < 0.0001). A strong positive relationship was found between leaf length and its probability of being grazed. These results show that wild boar do actively select the species of plant to be grazed, with a marked preference for *P. lanceolata* over *L. perenne*.

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*Lolium perenne*
*Plantago lanceolata*

1. Introduction

Over recent years, there has been an increase in meat production from the European wild boar (*Sus scrofa* L.) in countries such as Chile. Wild boar meat is reported to contain less fat and cholesterol than domestic pig meat (3.09 vs 5.66% fat in loin meat [de la Vega, 2003; USDA, 2004] and 45 vs 101 mg cholesterol/100 g meat [Sudom et al., 2001] from wild boar pigs and the domestic pig, respectively). These lower levels of fat and cholesterol in wild boar pig meat have led to it being marketed as a “more healthy” alternative to pork meat, and along with its characteristic taste, have resulted in the growing market both within Chile and overseas.

The predominant production system used for the production of European wild boar in Chile is a semi-extensive system, where the animals have access to pasture during the day, and also receive a concentrated diet as a supplement, usually at the end of the day. These pastures generally have a heterogeneous botanical composition, with the presence of contrasting species, with grass species such as *Lolium perenne* L. and *Bromus valdivianus* Phil., and broad-leaved species, such as *Plantago lanceolata* L. and *Hypochaeris radicata* L. Wild boar have been shown to consume a nutritionally important quantity of pasture (Hodgkinson et al., 2009), and it is estimated that growing wild boar (18 to 25 kg liveweight) reared in this system satisfy close to 142 and 52% of their daily maintenance digestible energy requirements through consumption of pasture in Spring and Summer, respectively (Quijada et al., 2011).

Selectivity has been defined as differences in defoliation between plants or parts of plants by grazing animals (Hodgson,
However, the capability to select specific plants or parts of plants depends on the animal species and the manner in which the forage to be consumed is physically taken by the animal’s mouth. For example, sheep take forages with their lips, which allows them to easily select between species and parts of the plant (Briseno de la Hoz and Wilman, 1981; Clark et al., 1984; López et al., 2003; Newman et al., 1994). Dairy cows, on the other hand, take forage with their tongue, which limits their selective capacity. In spite of this, even dairy cows have been shown to have preferences for certain species over others (e.g. Francis et al., 2006; Rutter et al., 2004). Gustafson and Stern (2003) conducted a study with grazing domestic pigs, and reported differences in the dry matter and crude protein in pasture samples taken pre- and post-grazing, suggesting that domestic pigs have the ability to select plants or parts of plants while grazing.

Selective grazing can accentuate differences in the botanical composition (heterogeneity) of the pasture, stimulating the growth of some species more than others (López et al., 2003) due to overgrazing of the selected species. Selective grazing does, however, allow animals such as sheep and goats to consume a better quality diet than the average available pasture (Stuth, 1991).

When wild boar graze paddocks containing predominantly grass species (L. perenne), their overall pasture dry matter consumption has been shown not to differ from when they graze pastures with predominantly broadleaf plants such as P. lanceolata (Hodgkinson et al., 2009). However, when they graze pastures containing a mixture of the two types of plant (which is the situation in a non-experimental paddock), their degree of selection between the two types of plant is not known. If such a preference does exist in the wild boar, it could be utilised to influence pasture intake, either to increase or decrease the pasture intake, depending on the requirements.

The objective of the study was to determine whether grazing European wild boar selectively graze some plant species and parts of the plant over others. In order to fulfill this objective, two highly contrasting plant species were used in the study: the grass species L. perenne and the broadleaf species P. lanceolata. The study was conducted in Summer and repeated in Autumn, to allow an analysis of the effects of the different growth patterns of the species in different seasons to be examined.

2. Materials and methods

2.1. Preliminary study

Prior to the main study, a preliminary study was conducted to determine the relationship between leaf length and leaf dry matter weight both for L. perenne and P. lanceolata. This was to determine whether it would be possible to estimate the dry matter consumption from marked leaves in the main study, using the difference in leaf lengths pre- and post-grazing, and if this was possible, to develop the necessary calibration equations. A total of 60 tillers of L. perenne and plants of P. lanceolata in the vegetative stage, with leaves ranging from 0.8 to 20.1 cm long for L. perenne and 0.4 and 29.3 cm long for P. lanceolata were collected from a pasture during early Summer, with a total of 189 and 176 leaves from L. perenne and P. lanceolata measured, respectively. The length of each leaf was measured using callipers, and each leaf was individually dried in an oven at 60 °C for 48 h and then weighed.

Linear and non-linear (allometric and quadratic) models were fitted to the leaf length and weight data from the two pasture species separately using the computer statistical programme SAS (PROC REG and PROC NLIN, SAS version 9.1.3, SAS Institute Inc., 2006). The Gauss Newton method was used to fit the non-linear models. The Akaike Information Criterion (AIC) was also determined for each equation (PROC MIXED and PROC NLMIXED). The equation that was deemed to have the best fit for each species was that with the lowest AIC (Steel et al., 1997).

2.2. Main study

For the main study, a securely fenced pasture (700 m²) containing predominantly L. perenne cv. Arrow AR1 and P. lanceolata cv. Tonic was used. The paddock was divided into 4 equal sized areas. One month before the study commenced, the pasture was cut to a height of 5 cm above soil level and fertilised. The study was carried out in Summer (January 2009) and repeated in Autumn (April 2009).

A total of 18 male pure-bred European wild boar (Sus scrofa L.) with an average bodyweight of 11.2 ± 0.25 kg (mean ± SEM) were used in the study. All of the wild boar had nose-rings. During each day of evaluation, the wild boar entered the paddock at 08:30 h and remained there until 16:30 h, after which the animals entered a barn and had free access to a commercial diet for 1 h. The commercial diet contained (determined values, dry matter, DM, basis) 17.85 MJ·kg⁻¹ gross energy, 190 g·kg⁻¹ crude protein, 79 g·kg⁻¹ crude fibre and 15 g·kg⁻¹ DM crude fat.

The study was conducted using three areas of the paddock successively, with area 1 used during days 1 to 3, area 2 used during days 4 to 6 and area 3 used during days 7 to 9.

In each area, just before the transects were placed and individual tillers and plants marked (see below), five pasture samples were taken cut to soil level (area of 0.25 m²). The sampled areas were randomly chosen, with no sampling conducted immediately adjacent to the fences. The botanical composition of each sample was determined by manually separating the species, drying each species separately in an oven at 60 °C until constant weight (48 h) and weighing the dried species.

In each paddock area, the night before the evaluation began, 4 replicate transects (10 m long) were marked. Along each transect, every 30 cm, an 8 cm long nail was buried vertically just under the soil surface. Each nail had a notch on its head that was placed immediately beside an individual L. perenne tiller or P. lanceolata plant, which was considered marked. Tillers from L. perenne were alternated with P. lanceolata plants along each transect, with a total of 15 individual tillers/plants from each species marked along each transect. All marked L. perenne tillers were vegetative, had an elongating tiller and at least 2 leaves. All marked P. lanceolata plants were vegetative. Each afternoon, following grazing, the nails were found using a metal detector, allowing the re-identification of each tiller/plant. The surface sward height (undisturbed height, corresponding to the vertical distance between soil level and the tallest part of the plant) of each tiller or plant was measured pre-grazing using a metre ruler. For each lamina of each marked tiller or plant, the leaf length was measured from the tip to its ligule (L. perenne) or
petiole base (*P. lanceolata*), using digital callipers pre- and post-grazing. Any tiller/plant that had a lamina that was shorter post-grazing to its length pre-grazing was considered grazed, and a new tiller/plant was marked in a similar position and measured to replace the grazed tiller/plant. Each transect was evaluated daily for a total of three days. Data regarding the minimum, maximum and average daily air temperatures were collected from a meteorological station in the adjacent farm. During the Summer trial the daily average temperature was 18.7 °C (SEM 0.05), the average daily maximum temperature was 26.0 °C (SEM 0.08) and the average daily minimum temperature was 11.6 °C (SEM 0.07). During the Autumn evaluation the average daily temperature was 14.2 °C (SEM 0.15), the average daily maximum temperature was 19.4 °C (SEM 0.22) and the average daily minimum temperature was 10.1 °C (SEM 0.09).

The experimental design corresponded to a random complete block design with three blocks (each paddock area). Each transect was considered to be a repetition.

All statistical analyses were carried out using the computer programme SAS (version 9.1.3, SAS Institute Inc, 2006). For each pasture species in each season (Summer and Autumn), the probability of the marked tillers/plants being grazed was determined in each transect, by dividing the number of tillers/plants that were grazed (thus having a shorter length post-grazing to pre-grazing) by the total number of marked tillers/plants. An ANOVA was conducted to determine whether there was a difference between species in the probability of being grazed. This data was tested and found to be normal using the Kolmogorov–Smirnov test.

For each tiller/plant, the total lamina length (sum of individual lamina lengths) was calculated pre- and post-grazing, and the difference in these values for each grazed tiller/plant was deemed to be the lamina length from that tiller/plant that was consumed by the wild boar (apparent consumption). The amount of dry matter that was consumed by the wild boar from each tiller was calculated using these lamina lengths and the equation of best fit determined in the preliminary study. This latter value was compared between *L. perenne* and *P. lanceolata* to determine whether the dry matter consumption differed between plant species, using ANOVA.

A Canonical Variate Analysis was conducted using the data regarding individual lamina lengths and estimated dry matter contents pre- and post-grazing for *L. perenne* and *P. lanceolata* to determine whether, for each plant species, the lengths and weights of the leaves were related to the probability of the leaf being grazed. The data collected during Summer was analysed separately from that collected during Autumn.

An ANOVA was conducted to determine whether there was a significant difference between seasons and species in the surface sward height of the tillers/plants. A simple logit regression was conducted to determine whether the surface sward height affected the probability that an individual tiller/plant had of being grazed, with each species analysed separately for each season.

3. Results

3.1. Preliminary study

For the relationship between leaf length and leaf weight in *L. perenne*, the regression coefficient was the same for the linear, quadratic and allometric equations (Table 1, $r^2 = 0.74$). The Akaike Information Criterion (AIC) was lower for the linear equation, so this was used for the calculations, the equation used being $y = 0.718x + 2.768$ (Fig. 1).

For *P. lanceolata*, the regression coefficient was again very similar for each of the equations fitted (Table 1), with the lowest AIC value being given by the model fitted with the equation $y = 1.6207x^{1.4429}$ (Fig. 1).

3.2. Main study

The botanical composition of the samples taken daily from the two paddocks used in the study is presented in Table 2.

Table 1

<table>
<thead>
<tr>
<th>Model fitted</th>
<th>$r^2$</th>
<th>AIC</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>L. perenne</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$y = 0.71840x + 2.76811$</td>
<td>0.740</td>
<td>831.6</td>
<td>****</td>
</tr>
<tr>
<td>$y = 0.55993x^{1.757}$</td>
<td>0.740</td>
<td>839.2</td>
<td>****</td>
</tr>
<tr>
<td>$y = 0.00251x^2 + 0.9887x - 1.0644$</td>
<td>0.740</td>
<td>839.9</td>
<td>****</td>
</tr>
<tr>
<td><em>P. lanceolata</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$y = 0.13047x + 3.44888$</td>
<td>0.876</td>
<td>1457.5</td>
<td>****</td>
</tr>
<tr>
<td>$y = 1.6207x^{1.4429}$</td>
<td>0.890</td>
<td>1441.5</td>
<td>****</td>
</tr>
<tr>
<td>$y = 0.1082x^2 + 4.3157x - 8.2363$</td>
<td>0.889</td>
<td>1444.1</td>
<td>****</td>
</tr>
</tbody>
</table>

$P$ = 0.0001

Fig. 1. Relationship between leaf length (x, cm) and leaf weight (y, mg dry matter) for *L. perenne* and *P. lanceolata*, their respective regression coefficients ($r^2$), Akaike Information Criterion (AIC) and the probability value ($P$, n = 189 and 178 for *L. perenne* and *P. lanceolata*, respectively).
Table 2
Botanical composition of the pasture in the paddocks during Summer and Autumn (mean ± SEM, % of total dry matter, n = 15).

<table>
<thead>
<tr>
<th>Species</th>
<th>Summer</th>
<th>Autumn</th>
</tr>
</thead>
<tbody>
<tr>
<td>L. perenne</td>
<td>26.4 ± 2.99</td>
<td>39.1 ± 4.05</td>
</tr>
<tr>
<td>P. lanceolata</td>
<td>49.5 ± 4.42</td>
<td>43.0 ± 4.34</td>
</tr>
<tr>
<td>Other grass species</td>
<td>5.2 ± 1.38</td>
<td>9.0 ± 2.92</td>
</tr>
<tr>
<td>Legume species</td>
<td>3.8 ± 1.59</td>
<td>1.1 ± 0.30</td>
</tr>
<tr>
<td>Other broadleaf species</td>
<td>15.0 ± 4.14</td>
<td>7.8 ± 2.37</td>
</tr>
</tbody>
</table>

All animals remained healthy throughout the trial and in the paddocks were observed to consume pasture. The animals grew at an average rate of (mean ± SEM) 171 ± 10.5 and 211 ± 59.5 g d⁻¹ during the trials conducted in Summer and Autumn, respectively.

The probability of being grazed was significantly greater for the marked P. lanceolata plants than for the L. perenne tillers in both Summer and Autumn (Table 3). The probability of a specific plant being grazed was also significantly greater in Autumn than in Summer. The quantity of dry matter apparently consumed from each transect (Table 3) was also notably greater for P. lanceolata plants than for the L. perenne tillers in both Summer and Autumn.

The results from the canonical variate analysis during Summer (Fig. 2A) and Autumn (Fig. 3A) showed that both leaf length and weight influenced the probability of grazing. The animals discriminated according to species and leaf number in both Summer (Fig. 2B) and Autumn (Fig. 3B), preferring leaves in the orders 2 and 3, then 1 then 4 for L. perenne and for P. lanceolata, 3, 4, 2 and 1, then 5, 6, 7 and 8, 9, 10 and 11 and finally 12 (in Summer). For all of the canonical variate analyses, the Wilk’s Lambda, Can 1 and Can 2 were highly significant (P < 0.0001).

The surface sward height (Table 3) was significantly greater in Summer than Autumn for both pasture species (P < 0.001). In Summer the average surface sward height of the P. lanceolata plants was greater than that for the tillers of L. perenne, whereas in Autumn the L. perenne tillers had a significantly taller surface sward height than the P. lanceolata plants. According to the results of the logit regression analyses, the surface sward height of the individual tillers/plants did not affect their probability of them being grazed for both species in Summer, and for L. perenne in Autumn (P > 0.05). However, for P. lanceolata in Autumn, there was a significant (P = 0.001) effect of surface sward height on the probability that an individual plant had of being grazed.

Table 3
Probability of the marked tillers of L. perenne and plants of P. lanceolata being grazed, amount apparently consumed per transect (containing 15 marked plants per species) by the wild boar during each day of the study (mean ± SEM, mg dry matter, n = 12) and mean (± SEM) surface sward height (cm) of the tillers/plants in Summer and Autumn and statistical differences between the two species.

<table>
<thead>
<tr>
<th>Species</th>
<th>Season</th>
<th>L. perenne</th>
<th>P. lanceolata</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing probability</td>
<td>Summer</td>
<td>0.27</td>
<td>0.46</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>Autumn</td>
<td>0.65</td>
<td>0.86</td>
<td>**</td>
</tr>
<tr>
<td>Amount consumed</td>
<td>Summer</td>
<td>30 ± 7.7</td>
<td>394 ± 91.7</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>Autumn</td>
<td>73 ± 10.9</td>
<td>751 ± 81.8</td>
<td>****</td>
</tr>
<tr>
<td>Surface sward height</td>
<td>Summer</td>
<td>8.6 ± 0.15</td>
<td>9.6 ± 0.18</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Autumn</td>
<td>7.3 ± 0.15</td>
<td>6.9 ± 0.18</td>
<td>*</td>
</tr>
</tbody>
</table>

* P < 0.05; ** P < 0.01; **** P < 0.0001.

4. Discussion

Lolium perenne is a rapidly growing grass species considered to be of high quality nutritionally, with high levels of energy, sugars and protein when compared with other grass species (Edwards et al., 2007; Williams et al., 2007). Plantago lanceolata is a broadleaf species, which was traditionally considered to be a weed. However, due to its characteristics such as its high dry matter production, erect structure which allows grazing animal easy access to its leaves, high growth rate during summer (drought tolerance) and high palatability (Stewart, 1996), commercial cultivars such as Tonic, which was used in the present study are available. The nutritional composition of pastures composed primarily of L. perenne has been shown to be very similar to that of pastures composed primarily of P. lanceolata, with similar levels of gross energy,
A. Discrimination according to leaf number between L. perenne (Lp) and P. lanceolata (Pl), with leaf 1 being the newest leaf and leaf 4 for Lp and leaf 11 for Pl being the oldest leaves.

B. Discrimination according to leaf number between L. perenne (Lp) and P. lanceolata (Pl), with leaf 1 being the newest leaf and leaf 4 for Lp and leaf 11 for Pl being the oldest leaves.

**Fig. 3.** Results of the canonical variate analysis of leaf lengths, weights and amounts consumed, and leaf number (newest to oldest) and their probability of being consumed during Autumn. A. Discrimination according to leaf length offered (pre-grazing, ALLO), the residuals (post-grazing, ALLR), the amounts consumed (ALLC) and leaf weight offered (ALWO), the residuals (ALWR), and the amounts consumed (ALWC). B. Discrimination according to leaf number between L. perenne (Lp) and P. lanceolata (Pl), with leaf 1 being the newest leaf and leaf 4 for Lp and leaf 11 for Pl being the oldest leaves.

Crude fibre and amino acids (Hodgkinson et al., 2009). The digestible energy content of L. perenne and P. lanceolata do not significantly differ in the wild boar (12.1 vs 12.6 MJ DE.kg DM⁻¹, respectively; Quijada et al., in press). The XIV region of Chile has a Summer drought, whereas during Summer L. perenne shows very little growth, whereas P. lanceolata will continue growing. The growth of L. perenne is normally much greater than that of P. lanceolata. These growth differences were present in the present study.

Normally, when this type of study is conducted with other animal species, plants are marked using a metal paperclip. Each paperclip identifies an individual plant or tiller which is measured pre- and post-grazing. However, considering that wild boar can burrow through the grass (even when they are nose-ringed), they could consume the paperclips, which as well as posing a potential health risk for the animals, would make the precise identification of the plants impossible. The method used in the present study, marking the tiller groups and plants by burying nails with notched heads vertically immediately beside them, and then using a metal detector to find the nails was an effective manner to identify tillers and plants. In total, of the 360 individual tiller/plants marked pre-grazing in each season, only 4 (1%) and 7 (2%) could not be identified post-grazing in Summer and Autumn, respectively.

To our knowledge, the relationship between lamina length and lamina weight for L. perenne and P. lanceolata has not been previously published. A strong relationship was found between these two variables, with correlation coefficients (R) of 0.86 and 0.94 for L. perenne and P. lanceolata, respectively. The consumed lamina length was then used to estimate the amount of dry matter from the marked plants that was consumed by the wild boar in the main study. All leaves/tillers measured during the preliminary study were in the vegetative physiological stage, as were those marked during the main study, thus the results from the preliminary study can be applied to those from the main study.

During both of the seasons studied (Summer and Autumn), the quantity of the grazed marked plants being consumed was also significantly greater for P. lanceolata than for L. perenne. The quantity of the grazed marked plants being consumed was also significantly greater for P. lanceolata than L. perenne in both seasons. These results show that wild boar do actively select the species of plant to be grazed, with a marked preference for P. lanceolata over L. perenne. The results from the multivariate canonical variate analysis were consistent with those obtained using univariate statistics.

Both the probability of being grazed and the amount of the plants/tillers that were apparently consumed by the animals were notably greater during Autumn than during Summer. This suggests that grazing wild boar consume more pasture during Autumn than during Summer. The dry matter and nutrient consumption by grazing wild boar has not been previously studied during Autumn. In a study in which the amount of dry matter and nutrients that is consumed by grazing wild boar was determined in Spring and Summer using the herbage cutting technique, the consumption in Spring was found to be notably greater than that in Summer (Hodgkinson et al., 2009). In the study reported by Hodgkinson et al. (2009), no relationship was found between environmental temperature and pasture consumption, within the temperature range of their study (average daily minimum 9.4 °C, average daily maximum 24.6 °C). The temperature range in the present study was very close to that during the study by Hodgkinson et al. (2009), thus it is unlikely that the difference in environmental temperature in the present study, between Summer and Autumn, affected the grazing animals' dry matter consumption.

It could be expected that the higher probability of the marked tillers/plants of being grazed in Autumn than in Summer could be due to differences in the nutritive values of the plants between the two seasons. Machado et al. (2005) evaluated seasonal changes in herbage quality in a pasture composed of L. perenne and Trifolium repens (white clover) in samples taken every two weeks over a period of more than 3 years and found no significant difference in the metabolizable energy (bovine) or fibre content (ADF and NDF) between samples collected in Summer and Autumn. Similarly, Balocchi and López (2009) found little difference in the D value of pasture samples taken over 3 years from L. perenne pastures in January (Summer) and March (Autumn) with D values between 73 and 75, although the crude protein content of the
samples taken both aforementioned studies was somewhat greater in Autumn than Summer. It is important to note that the difference in the probability of being grazed between L. perenne and P. lanceolata was similar in both seasons; in both seasons the wild boar showed a clear and statistically significant preference for P. lanceolata over L. perenne.

The results from the multivariate canonical variate analysis also showed that strong positive relationship between lamina/leaf length and grazing, with the animals preferring longer laminae/leaves when grazing. In L. perenne the second and third laminae are the longest and thus largest laminae, whereas with P. lanceolata the longest laminae were leaves 3 and 4 followed by laminae 1 and 2 (leaf length measurements taken in the present study, data not shown). Thus the animals actively preferred the largest laminae/leaves, those with the longest length and greatest weight, both for L. perenne and P. lanceolata. This is most likely due to the visibility and ease of accessibility of the longer leaves compared with shorter leaves.

The surface sward height only affected the probability that an individual tiller/plant had of being grazed during Autumn with P. lanceolata. It is interesting to note that the surface sward heights of the P. lanceolata plants in Autumn were significantly less than that during Summer, and for L. perenne during both seasons. Thus, when the average plant undisturbed height (surface sward height) was shorter, the animals showed a preference for the taller plants, which did not occur when the plants were longer. In Summer with P. lanceolata when plant height did not affect the probability of being grazed, the average plant height was 9.6 cm, whereas in Autumn it was 6.9 cm.

When the effect of undisturbed surface sward height on the grazing decisions of other grazing animals, such as bovines and ovis has been studied, the pastures used have been cut so that the surface sward height of all swards is the same, rather than analysing the effect of the undisturbed height of individual plants, as in the present study. In these studies, the herbage intake of the animals has been shown to be influenced by the surface sward height, increasing with increasing surface sward height until the herbage intake reaches a plateau, with no further increases (e.g. Chestnutt, 1992; Hodgson and Brooks, 1999; Barrett et al., 2001; Osoro et al., 2002). Although Gibb et al. (1997) found the herbage intake of dairy cows to be maximised with a surface sward height of 7 cm, compared with 5 or 9 cm. In the present study with wild boar, the results were somewhat different; an effect of sward surface height on grazing only occurred during Autumn with P. lanceolata, which was also when the average undisturbed plant height was the lowest, but the plants had the greatest probability of being grazed, with the greatest dry matter consumption by the wild boar. This further supports the preference for wild boar for the broadleaf species P. lanceolata over the grass species L. perenne.

The results of this study show that European wild boar select for certain pasture species over others. This preference could potentially be used to influence pasture intake by giving the animals access to pasture with a specific botanical composition.

5. Conclusion

Wild boar actively select the species of plant to be grazed, with a marked preference for P. lanceolata over L. perenne.

There is a strong positive relationship between leaf length and grazing, with the animals preferring larger leaves.

Acknowledgements

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O confirm the correct references and complete the bibliography. There were issues with the data not showing the references correctly.

