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Controlling bracken fern through grazing with Black Alpine Pigs: an on-farm case study

Introduction

The invasive spread of bracken fern *(Pteridium aquilinum)* is a major problem on extensively used pastures in mountain and alpine areas. The fern, which is poisonous to many animals, outcompetes forage plants suitable for grazing and leads to a decline in biodiversity. As mechanical control of bracken is very labour-intensive, these overgrown pasture areas are increasingly being abandoned.

Anecdotal reports say that pigs of the breed Black Alpine Pig (SAS) foraged on bracken without showing any adverse health effects.

Figure 1: The Black Alpine Pigs eat not only the fronds but also the roots of the bracken fern and spend a lot of time rooting and grazing.

Methods

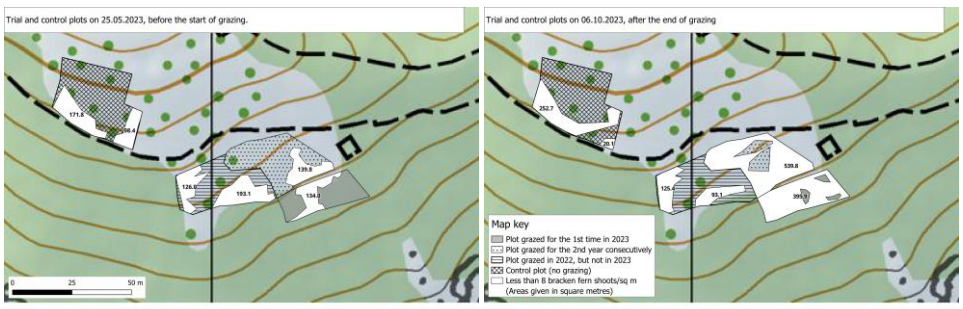
SAS pigs (n = 14) grazed on areas that were overgrown with bracken on the Soladino Alpine pasture in Vallemaggia (Someo), Ticino, from May to October in 2022, 2023 and 2024. The grazing area per pig ranged from 234 to 503 m². The development of the bracken plant population was recorded using GPS measures. The health status of the animals was documented and the content of the plant toxin ptaquiloside was determined by laboratory analysis of muscle meat, liver and kidneys after slaughter. The pigs were slaughtered on day 2 as well as in weeks 4, 8 and 14 after the last day on pasture.

Figure 2: The survey of the plots was carried out using a GPS device. Three surveys were conducted each year to document changes in vegetation cover.

Results

The bracken fern on the trial areas was reduced by 80 to 100% by the grazing SAS pigs during one Alpine season. However, grazing for only one year did not have a lasting effect. Repeated grazing as well as subsequent sowing of fast-growing pasture mixtures proved to be beneficial. In all muscle meat, liver and kidney samples, the ptaquiloside content was below the measurable value of 0.2 mg/kg.

The animals showed no signs of discomfort or poisoning at any time. Daily weight gains were within the expected range for the breed.



Treatment	May–Oct 2022	May–Oct 2023	May–Sept 2024
Grazed for the first time	- 100 %	- 88.2 %	- 100 %
Grazed consecutively in 2nd /3rd year)	(-)	- 79.4 %	- 100 %
Grazed in 1st year, but not in 2nd year	(-)	+ 29.9 % (-19.3 % *)	(-)
Control (no grazing)	- 10.1 %	- 0.4 %	+ 24.3 %

Figure 3: Development of bracken coverage during grazing seasons. The maps show year 2023. The table shows the development for all three trial years. *(* In relation to May 2022)*

Conclusion

The results of this case study suggest that controlling bracken fern through grazing with Black Alpine Pigs for at least three years is promising when combined with appropriate management such as sowing fast-growing and site-adapted grass combinations after grazing. This measure is essential for preventing erosion and making the land suitable for grazing by ruminants. From a behavioural perspective, smaller paddocks and more frequent rotation of grazing areas could also be promising. Further research to optimize the approach could provide additional practical support.

Figure 4: Trial plot at the end of the grazing period in 2022. The SAS pigs have completely cleared the area of bracken fern by grazing from May to October.

References
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