

Free-range pigs foraging on Jerusalem artichokes

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Free-range pig production in Northern Europe is characterized by high inputs of concentrate on grassland. This increases risk of nutrient leaching, increases feed costs and puts a pressure on land resources. Pigs' unique ability to find a part of their food directly in the field where they are kept should be taken into consideration. One below ground field forage characterized by very high yields and with great potential as fodder source is Jerusalem Artichokes (JA) tubers. The nutritional contribution from free-range foraging, growth, feed conversion and behaviour were investigated in 36 growing pigs foraging on JA and fed concentrates restrictedly (30 % of energy recommendations) or *ad libitum*. Behavioural observations were carried out weekly over the entire experimental period of 40 days. The average daily consumption of concentrate was 51 MJ and 11 MJ ME pig⁻¹ for pigs fed *ad libitum* and restrictedly, respectively. Compared to the *ad libitum* fed pigs, the pigs fed restrictedly had a significant lower daily gain (560 vs. 1,224 g pig⁻¹), improved feed conversion ratio (17.6 vs. 42.8 MJ ME concentrate kg⁻¹ live weight gain) and spent more time foraging JA tubers (7.9 vs. 1.1%). Body conditions were comparable between the two treatments. It is estimated that pigs fed restrictedly found approximately 60% of their energy requirement from foraging in the range and consumed 1.3 kg to 1.6 kg DM of JA pig⁻¹ per day. The results indicate good possibilities for substituting a large proportion of concentrates with home-grown JA tubers biological harvested by foraging pigs. Future studies are needed to reveal the most appropriate concentrate feeding regime when combined with foraging JA in relation to consequences for growth and feed conversion, but also for meat quality, animal health and nutrient balances.