An experiment was conducted to study the effect of diets with contrasting fermentability in the large intestine on experimental infections with Brachyspira hyodysenteriae, the causative agent of swine dysentery, and the whip worm, Trichuris suis, in pigs. Two diets with organically grown ingredients were composed. Both diets were based on triticale and barley and supplemented with either rape seed cake (Diet 1) or dried chicory root and sweet lupins (Diet 2). The study had a three-factorial design, with eight groups of pigs receiving Diet 1 or Diet 2, +/- B. hyodysenteriae, and +/- T. suis. Pigs fed Diet 2 and challenged with B. hyodysenteriae did not develop swine dysentery and B. hyodysenteriae was not demonstrated in any of the pigs during the study. In contrast, 94% of the B. hyodysenteriae challenged pigs fed Diet 1 showed clinical symptoms of swine dysentery and all the pigs were shedding B. hyodysenteriae in faeces at some points in time during the experiment. The number of T. suis was lower in pigs fed Diet 2 compared to pigs fed Diet 1, but the differences were not significant. Pigs on Diet 1 and challenged with both pathogens showed clinical symptoms of SD for a longer period than pigs inoculated with B. hyodysenteriae only. The study showed that diets supplemented with highly fermentable carbohydrates from dried chicory roots and sweet lupins can protect pigs against developing swine dysentery, but do not have any significant influence on T. suis.