Southern Brazil is a sub-tropical region where *Haemonchus contortus* is predominant throughout most of the year. Under these conditions, grazing adult sheep harbour high FEC counts and it is not uncommon for flocks to be drenched an average of nine times/year. It is becoming harder for farmers to control sheep gastrointestinal nematode (GIN) infections due to parasite resistance to currently available drugs in the market. Exploring host resistance through faecal egg counts (FEC) measurements is a low cost alternative with potential to control GIN infections. The effects of FEC selection on flock production are being studied in a trial where low and high faecal egg count breeding ewes, with respective FEC<500 and FEC>1000, were allocated to contiguous paddocks at a commercial farm in Southern Brazil. Ewes were naturally challenged at adult age, and the FEC average was calculated based on two different challenge cycles, with 45 days interval. These two sub-flocks, having 60 breeding ewes each, were maintained at different paddocks at all times, except during mating season (45 days/year). The objective was to measure performance on numbers of drenches, mating and weaning weights of dams and their offspring, respectively. FEC averages for the low and high groups of dams were of 177 and 2287 (p=0.0001), respectively. A three-year period was analysed and results show an average increase of 2kg/year in weaning weight for the low FEC ewe’s offspring compared to the high FEC group progeny (p=0.0001). Low FEC ewes were also 3kg heavier than high FECs at mating time (p=0.0009). An average reduction of 1.3 drenches/year for the low FEC group was observed, with significant year variation. Higher reductions in drenches were observed in more humid years. Although the low FEC group of dams showed egg count averages of 177 during natural challenge, it doesn’t mean they were unable to show high egg counts after their challenge period, in fact these low FEC breeding ewes had to be drenched four times every year (two strategic drenches at the beginning of mating and of lambing). The results found here show that it is feasible for farmers to explore individual host resistance to GIN infections by keeping more resistant individuals. In doing so farmers would also successfully reduce the number of drenches in their flocks.