Supplementary Material

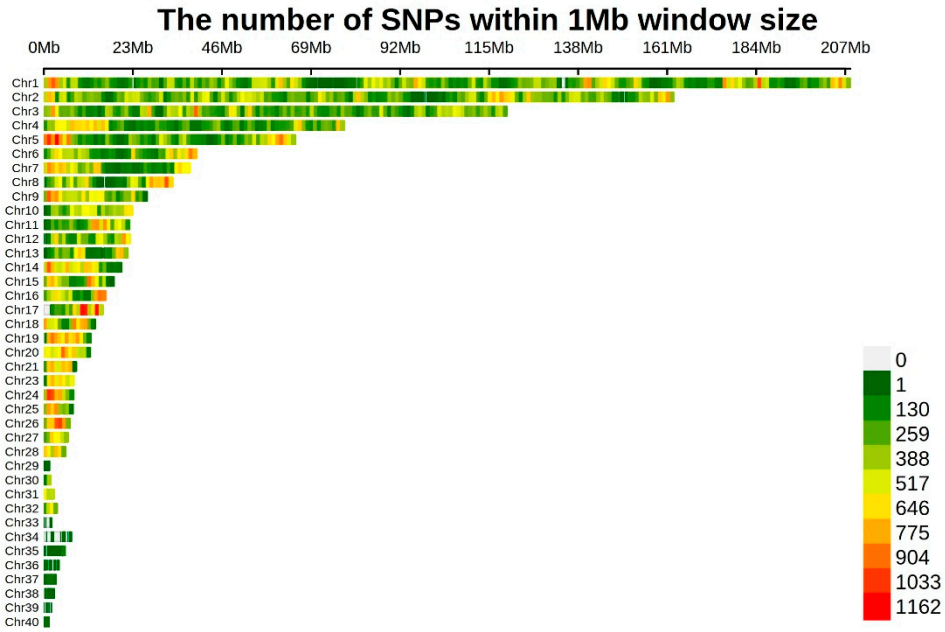

Figure S1. Distribution of 365,860 variant sites on autosomes used for genomic prediction in Pekin ducks.

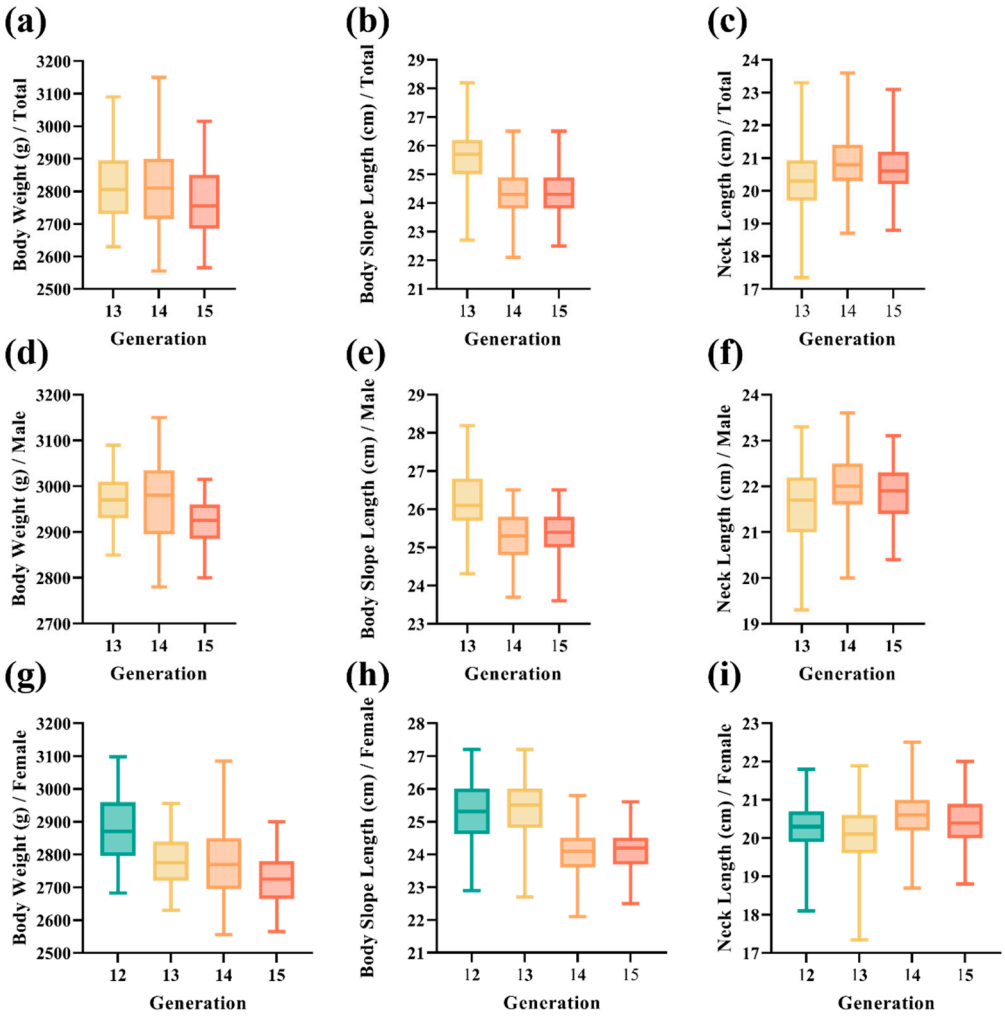

Figure S2. Multi-generational comparison of growth traits in overall, male, and female Pekin ducks. (a-c) comparison of overall growth traits; (d-f) comparison of growth traits in male ducks; (g-i) comparison of growth traits in female ducks; (a,d,g) Body weight at 6 weeks of age; (b,e,h) Body slope length; (c,f,i) Neck length. The X-axis represents generations, the Y-axis represents phenotypic values, and the vertical error bars represent the standard deviation of the corresponding traits.

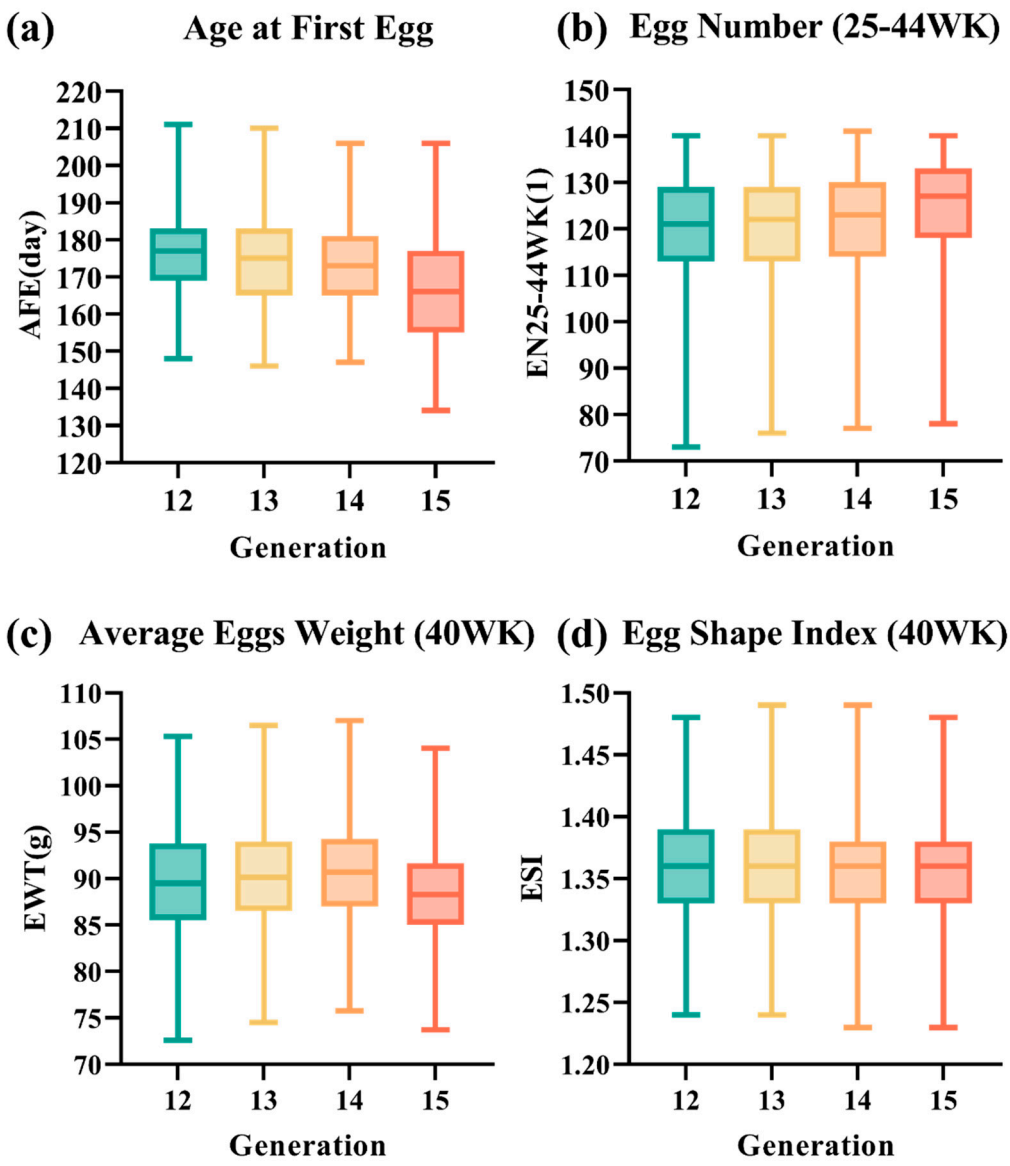

Figure S3. Multi-generational comparison of reproductive and egg quality traits in female Pekin ducks. (a) Age at first egg; (b) Egg number from 25 to 44 weeks; (c) Average egg weight at 40 weeks of age; (d) Average egg shape index at 40 weeks of age. The X-axis represents generations, the Y-axis represents phenotypic values, and the vertical error bars represent the standard deviation of the corresponding traits.

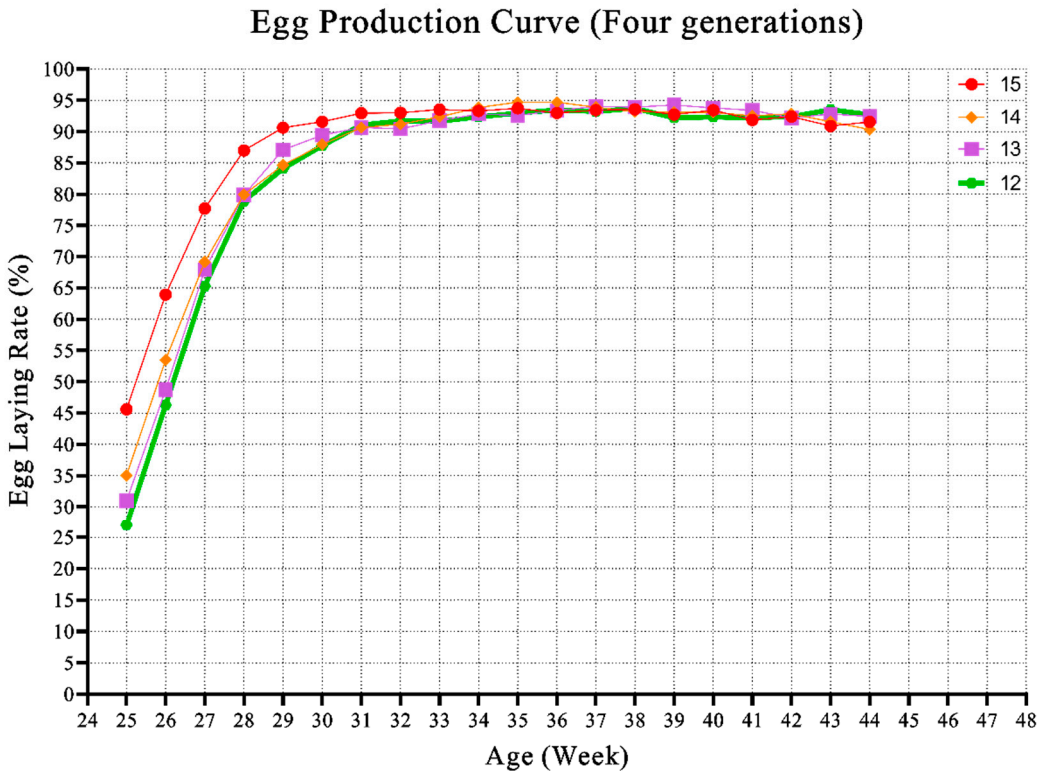

Figure S4. Egg production curve of Pekin ducks from 25-44 weeks over four consecutive generations. Green represents the 12th generation; purple represents the 13th generation; orange represents the 14th generation; red represents the 15th generation.

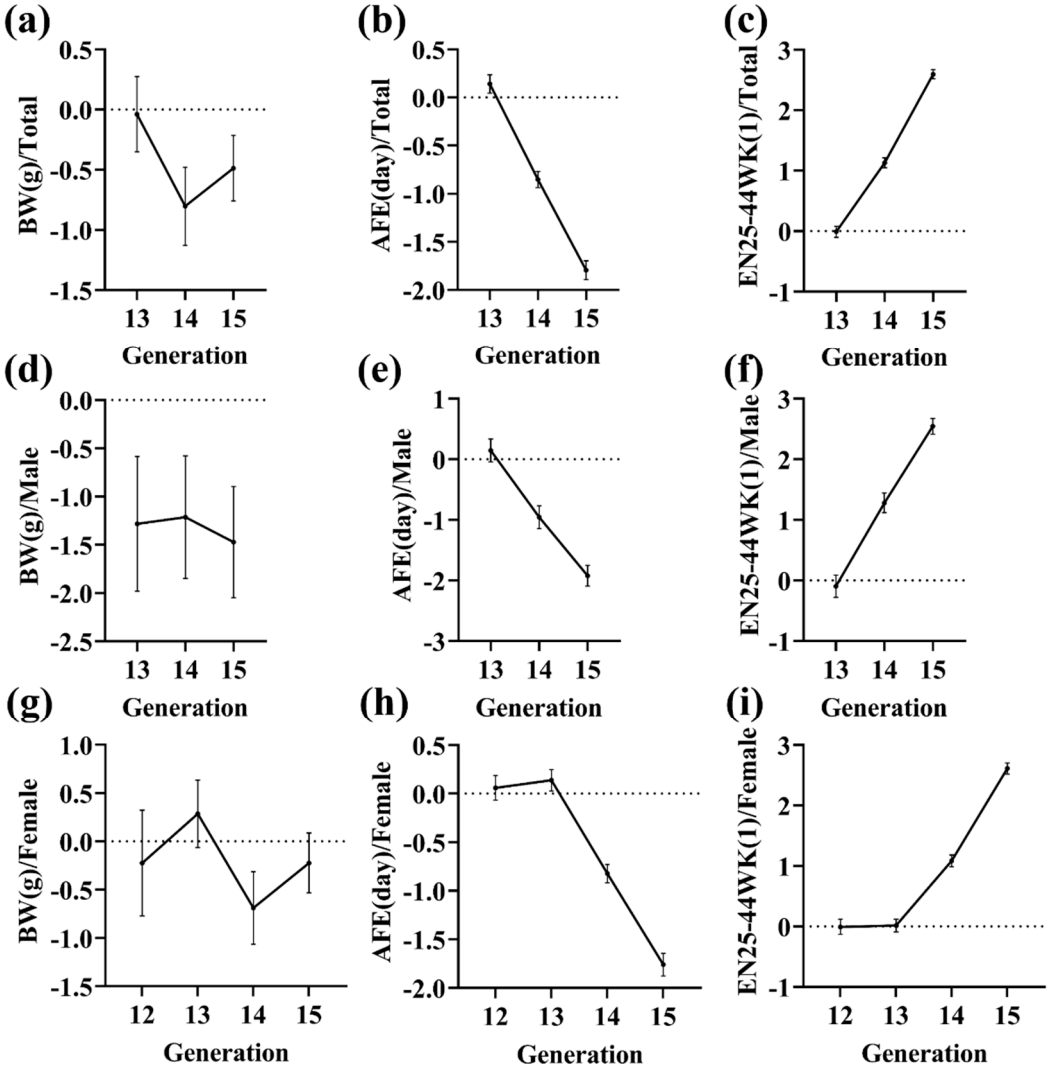

Figure S5. Genetic improvements of related traits over generations based on the BLUP model. (a-c) overall improvements; (d-f) improvements in male ducks; (g-i) improvements in female ducks. (a,d,g) Body weight at 6 weeks of age; (b,e,h) Age at first egg; (c,f,i) Egg number from 25-44 weeks of age. The X-axis represents generations, the Y-axis represents estimated breeding values, and the vertical error bars represent the standard errors of the corresponding traits.