

豐輝牧場紅羽土雞選育族群近親係數分析

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前言

豐輝牧場紅羽土雞選育族群係該場為進行種原固定，於2010年從原有紅羽土雞族群中以每個品系1公40母進行人工授精系譜繁殖來更新下一世代所建立之4個品系的閉鎖族群。選育過程中B品系與D品系因外觀與性能表現不佳分別於2012年與2013年與予全數淘汰。2014年再從自家紅羽土雞族群中B品系純系放量族群選留一批種雞建立E品系，同時引進C品系純系放量族群31隻母雞進入選育族群中。為瞭解此育成之高產蛋品系之近親係數，取用該族群完整系譜資料進行近親係數分析。

材料與方法

1. 取用2010年至2016年的豐輝牧場紅羽土雞選育族群之系譜資料進行近親係數分析。
2. 紅羽土雞A品系、C品系及 E品系(圖1)的系譜資料分別有4,453筆、3,454筆及5,782筆。
3. 以統計分析系統(SAS)進行近親係數分析。

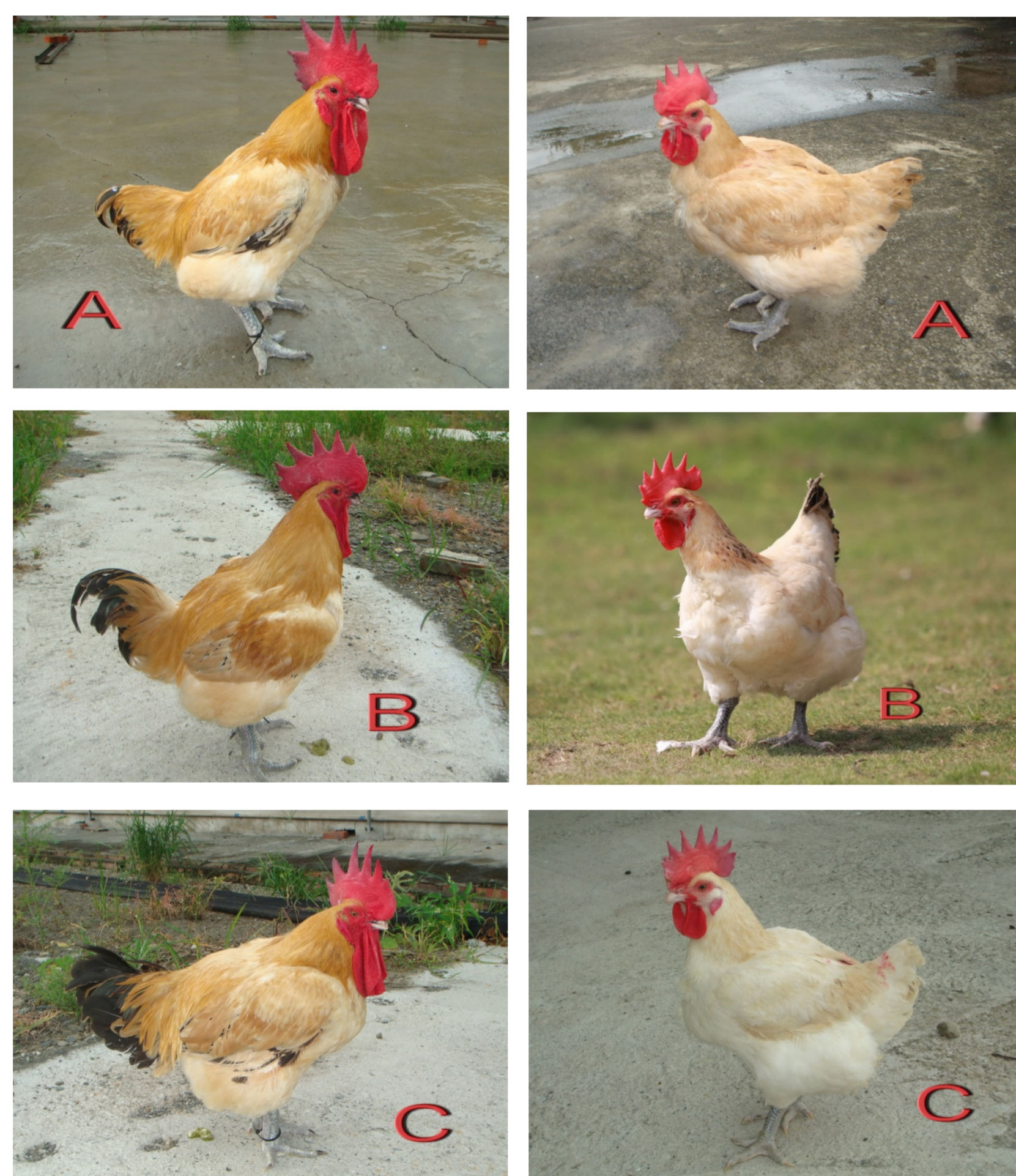


圖 1. 豐輝牧場紅羽土雞選育族群種雞。

結果與討論

A個品系與C品系選育族群雞隻於G2、G3、G4、G5、G6、G7、G8、G9世代之近親係數平均分別為0.1367與0.1391、0.2229與0.2213、0.3096與0.3121、0.3471與0.3857、0.4175與0.4517、0.4801與0.5142、0.5370與0.1974及0.5842與0.2735。E品系選育族群雞隻於G2、G3及G4世代之近親係數平

均分別為0.1250、0.1250及0.2496(圖2)。因豐輝牧場紅羽土雞選育族群係採全同胞或半同胞的配種繁殖，近親係數隨著選育世代數增加各品系亦隨之增高，引入新血源其近親係數之估算就會降低。

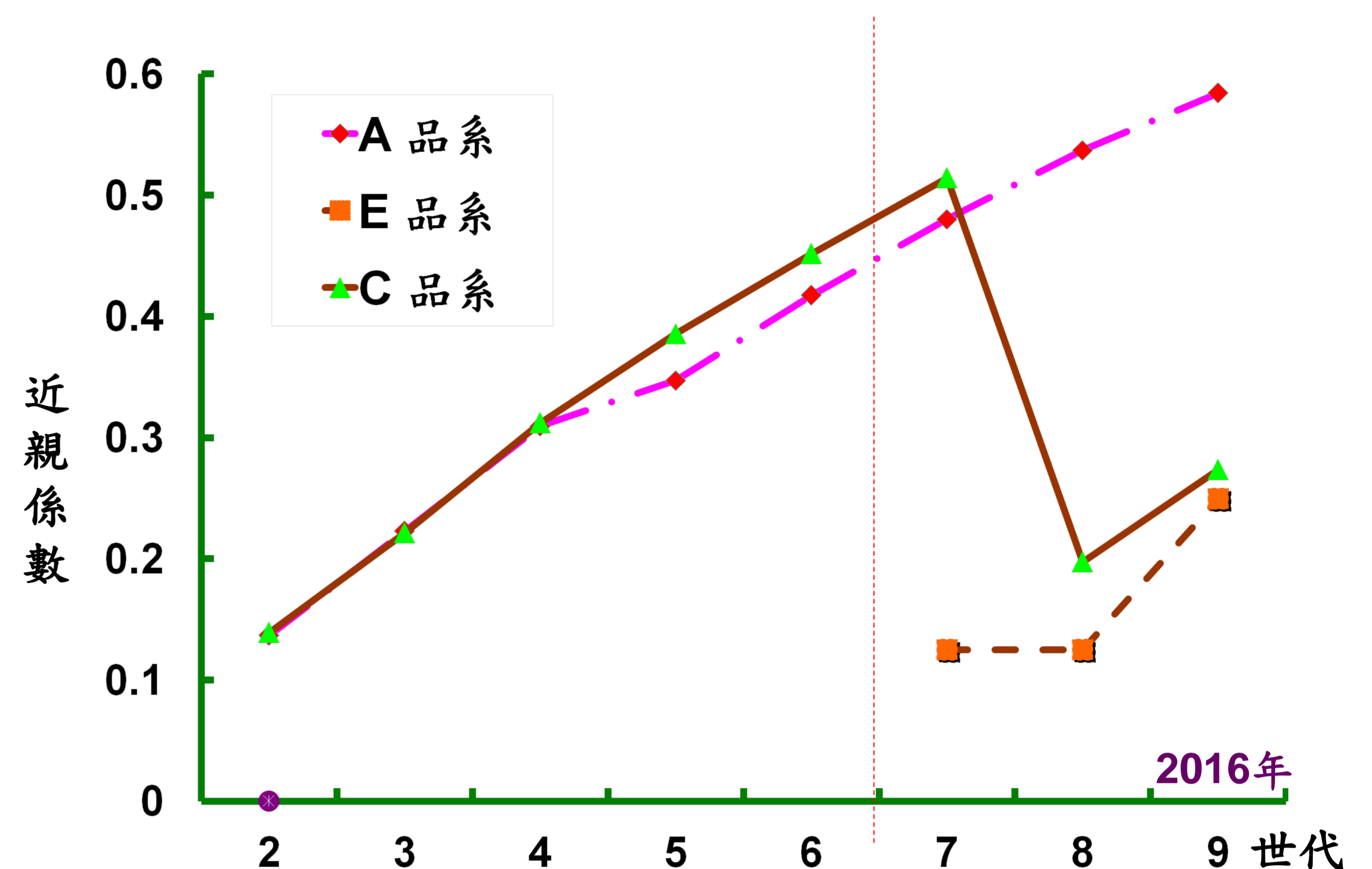


圖 2. 紅羽土雞選育族群不同品系各世代近親係數估值。

結論

目前選育族群2,331隻雞隻之近親係數為 0.3755 ± 0.1536 。以半同胞配種進行種原固定，C品系選育族群G7世代雞隻與A品系選育族群G8世代雞隻之平均近親係數皆達0.5以上。顯示此一族群品系內仍存有相當高的親緣關係。

Inbreeding coefficients of red feather native chicken selection flock in Feng Hui breeding farm

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Feng Hui red feather native chicken selection flock was established from the original flock. One roaster mating 40 hens per line to breeding next generation by AI pedigree reproduction. There were four lines in the selection flock. The B line and D line were eliminated for appearance and performance consideration in 2012 and 2013, respectively. A new E line was established from the original flock and 31 hen from C line pure line expansion flock were added into C line selection flock in 2014. We analyzed 13,690 records pedigree data including 4,453 records of A line, 5,782 records of C line and 3,454 records of E line collected from 2010 to 2016 by SAS statistical software. It shows the inbreeding coefficients of G2, G3, G4, G5, G6, G7, G8 and G9 generations in A line and C line were 0.1367 ± 0.0106 and 0.1391 ± 0.0396 , 0.2229 ± 0.0367 and 0.2213 ± 0.0927 , 0.3096 ± 0.0118 and 0.3121 ± 0.0220 , 0.3471 ± 0.0474 and 0.3857 ± 0.0154 , 0.4175 ± 0.0123 and 0.4517 ± 0.0515 , 0.4801 ± 0.0106 and 0.5142 ± 0.2482 , 0.5370 ± 0.0113 and 0.1974 ± 0.2482 , and 0.5842 ± 0.0171 and 0.2735 ± 0.0243 , respectively. The inbreeding coefficients of G2, G3 and G4 generations in E line were 0.1250 ± 0.0178 , 0.1250 ± 0 and 0.2496 ± 0.0235 . The inbreeding coefficient of current flock with 2,331 birds was 0.3755 ± 0.1536 . Results showed the inbreeding coefficients of G7 in C line and G8 in A line reached more than 0.5 in the selection flock.