**Improvement of Layer Pure Lines Developed at Ankara Poultry Research Institute and Determining of Various Production Traits and Integrations to Turkey Poultry**

This project was conducted to effectively benefit from brown and white layer pure lines, which were used for chicken breeding studies of Ankara Poultry Research Institute, and to extend obtained results. In this project a total of seven work packages, which were assumed as connected with each others, were completed.

A full environmental controlled poultry house was built for brooding and egg production recording in context of substructrural development strategies. A barcode system and related handy terminal units were started to use for perfect data collection and process. Furthermore, hatchery capacity was enlarged, biosecurity applications, efficient autosexing and vent sexing, and vaccinations were started to use with automatic equipments in the hatchery.

Selection procedures in pure lines were carried out throughout three generations. Being a multiple selection procedure, Index Method was applied for examined traits, such as age and wieght at sexual maturity, egg production, egg wieght and livability, of six brown and four white layer pure lines. Heritabilities, genotypic correlations between these traits and genetic improvements were calculated in all lines during each generation.

A total of eight dam lines (four each pure and cross-bred) and a total of four sire lines (two each pure and cross-bred) were used during brown layer parent improvement studies. A total of four dam lines (two each pure and dual cross-bred) and in the same way a total of four sire lines (two each pure and dual cross-bred) were tested during white layer parent improvement studies. It was observed that especially dual crosses were more superior to some pure line parents, age and weight at sexual maturity were decreased within acceptable limits. Same case was observed for egg production, egg weight and hatchable egg proportion. Point of view in parent lines for egg production and hatchable egg proportion, it was observed that some dam lines (BAR-1, BAR-1 x BAR-2, BAR-2 x BAR-1, L-54 x COL, BLU, MAR x BLU) were remarkable.

Being a result of commercial layer hybrid production studies and performance tests in fully controlled house conditions, coded as “21” non-barred black feathered three-way brown layer crosses; coded as “31, 34 and 41” gold feathered brown layers, and in white layer hybrid groups coded as “81” crosses were observed as remarkable.

In universities, Random Sampling Tests were performed to compare indigenous and foreign commercial layer hybrids. In conclusion, indigenous commercial layer hybrids were found as satisfactorily. Output of this project was introduced in home and abroad, successfully, and obtaining results may have reached to reasonable market share.