

# **Economic Values for Resistance to Helminthosis and Newcastle Disease in Indigenous Chicken in the Tropics**

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## **Abstract**

The economic values for resistance to helminthosis and Newcastle Disease (ND) in indigenous chicken were estimated relative to egg number (EN), average daily gain (ADG, g) and live weight at 21 weeks (LW, g) using selection index methodology. Both traditional and risk-rated economic values for EN, ADG and LW were used. Faecal worm egg count (FEC, epg) and antibody response (Ab, HI to log2) were used as indicator traits for helminthosis and ND respectively. The economic values were estimated assuming four breeding objective options i.e., 1) where response in single-trait selection was equivalent to index response for that trait; 2) response from the desired trait(s) is maximized; 3) response achieved when the response in FEC and Ab were zero and 4) response achieved when the response in FEC and Ab were minimum. The economic values for FEC under single-trait selection were negative in options 1, 3 and 4 while those for Ab were negative in option 1 only. Since large negative economic values are desirable for FEC and Ab, they were obtained in Option 3 and 1 respectively. High economic response and accuracy to selection was observed in Option 2 for FEC and Option 1 for Ab. Increasing the number of traits in the index resulted in increased economic values, economic response and accuracy to selection. The same trend was observed when risk-rated economic values for breeding objective traits were used but the results were lower. This study shows that incorporating disease resistance in the breeding program of IC is visible.