The aim of this study was to examine the effects of the diets based on Soybean Meal (40%) supplemented with exogenous enzymes on growth performance, feed utilization, apparent digestibility and reduce environment pollution waste output of nitrogen and phosphorus in rainbow trout (Oncorhynchus mykiss) culture. Trout groups (initial weight 87.00±1.5) method of random plots with 3 replications of 50 fish/pond with the ratio of 1050 fish in the concrete ponds. Diets consisted of 25% fish meal (FM) and 40% dehulled hexane extracted soybean meal (SBM) in control group (C0) and diet supplemented with protease enzyme (PRT; 2g/kg-1), diet supplemented with enzyme cocktail (MIX; cellulose, xylanase, endo-β-1,3;1,4-glucanase; 2g/kg-1) and diet supplemented with pyhtase enzyme (PHY; 2g/kg-1). About of growth performance were found while condition factor (1,21-1,23) were statistically similar (p>0.05), however specific growth rate, SGR, (1,118-1,340) and feed conversion ratio, FCR, (1,26-1,30) were obtained significantly different among groups (p<0,05). PRT and PHY groups significantly improved SGR and FCR better than control group. In this study, showed the highest nitrogen apparent digestibility coefficient, ADC (85,49±1,98) in PRT group while, the poorest value obtained (72,82±0.01) C0 group respectively (p<0,05). Also the best (58.57±0.49) and lowest (42.85±1.98) ADC was obtained PHT and C0 groups for phosphorus respectively (p<0,05).

Keywords: rainbow trout, enzyme, growth performance, nitrogen, phosphorus, digestibility