Answer on Question #67658 – Math – Statistics and Probability

Question

Of 560 broiler chickens purchased from various kinds of food stores in different regions of a country and tested for types of bacteria that cause food-borne illnesses, 65% were infected with a particular bacterium.

a) Construct a 90% confidence interval.

b) Explain what your confidence interval says about chicken sold in the country.

c) A government spokesperson claimed that the sample size was too small, relative to the billions of chickens slaughtered each year, to generalize. Is this criticism valid?

Solution

a) $90\%\ CI = \left(0.65 - 1.645\sqrt{\frac{0.65(1-0.65)}{560}},\ 0.65 - 1.645\sqrt{\frac{0.65(1-0.65)}{560}}\right) =$

$= (0.617,\ 0.683).$

b) We are 90% confident that between 61.7% and 68.3% of the chicken sold in the country were infected.

c) No. Until the necessary assumptions and conditions for the confidence interval are met, the results can be generalized.