(A)

POULTRY & EGG MASS ESTIMATE

poultry

per capita mass, $m_{poultry}^{(diet)} \approx \frac{f \times 10^{-1}\ kg}{person \times week} \times \frac{52\ weeks}{1\ year}$

$\approx 10\ kg\ /\ (person \times year)$

global mass, $m_{poultry} \approx \frac{10\ kg}{person \times year} \times 8 \times 10^{9}\ people$

$\approx 10^{11}\ kg\ /\ year$

eggs

per capita mass, $m_{egg}^{(diet)} \approx \frac{f\ eggs}{person \times week} \times \frac{f \times 10^{-2}\ kg}{1\ egg} \times \frac{52\ weeks}{1\ year}$

$\approx f\ kg\ /\ (person \times year)$

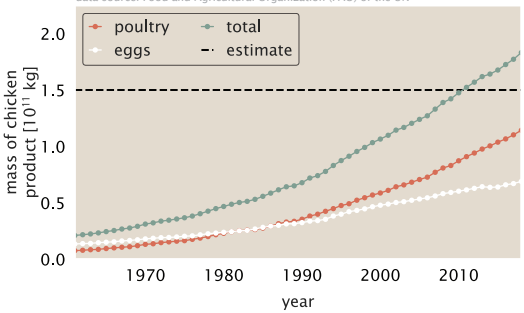
global mass, $m_{egg} \approx \frac{f\ kg}{person \times year} \times 8 \times 10^{9}\ people$

$\approx f \times 10^{10}\ kg\ /\ year$

(B)

global mass, $m_{chicken} \approx m_{poultry} + m_{egg} \approx 1.f \times 10^{11}\ kg\ /\ year$

data source: Food and Agricultural Organization (FAO) of the UN



(C)

ESTIMATING STANDING CHICKEN POPULATION

laying

egg mass, $m_{egg}^{(chicken)} \approx \frac{f \times 10^{2}\ eggs}{chicken} \times \frac{f \times 10^{-2}\ kg}{egg}$

$\approx 10\ kg\ /\ chicken$

laying chicken lifespan, $t_{chicken}^{(laying)} \approx 1\ year$

laying population, $N_{chicken}^{(laying)} \approx \frac{10^{11}\ kg}{year} \times \frac{1\ chicken}{10\ kg} \times 1\ year$

$\approx 10^{10}$ egg-laying chicken

poultry

poultry mass, $m_{poultry}^{(chicken)} \approx \frac{f\ kg}{chicken}$

poultry maturation time, $t_{chicken}^{(poultry)} \approx 10^{-1}\ year$

poultry population, $N_{chicken}^{(poultry)} \approx \frac{f \times 10^{11}\ kg}{year} \times \frac{1\ chicken}{f\ kg} \times 10^{-1}\ year$

$\approx 10^{10}$ poultry chicken

(D)

total chicken population, $N_{chicken} \approx N_{chicken} + N_{chicken} \approx f \times 10^{10}$

data source: Food and Agricultural Organization (FAO) of the UN