Method of computing relative standard errors (CV):

We applied formulas for variance estimation of total known from classical theory for stratified random sampling. Relative standard error (coefficient of variation) for total of variable *X* in domain *D* equals:

$CV(\hat{X}|D) = \frac{\sqrt{Var(\hat{Y})}}{\hat{Y}}$,

$\hat{Y} = \sum_h \sum_i y_{hi}$ (estimator of total),

$Var(\hat{Y}) = \sum_h \hat{N}_h^2 \left(\frac{1}{n_h} - \frac{1}{\hat{N}_h}\right) s_h^2$ (variance estimator of total),

$\hat{N}_h = \sum_i w_{hi}$,

$y_{hi} = x_{hi}$ for unit *i* in domain *D*, otherwise $y_{hi} = 0$,

x_{hi} denotes values of surveyed variable for unit *i* in stratum *h*,

w_{hi} is weight for estimation (i.e. design weight after correction),

n_h denotes number of units in realized sample in stratum *h*,

s_h^2 is sample variance for variable *Y* in stratum *h*.

In the case of ratio estimator (e.g . estimation of yields) estimator is defined as:

$$\hat{R} = \frac{\hat{U}}{\hat{V}} = \frac{\sum_h \sum_i u_{hi}}{\sum_h \sum_i v_{hi}}$$

and its variance (in the numerator of the formula for CV) is estimated using above formula for variance of total with "linearized variable" defined as:

$z_{hi} = \frac{u_{hi} - \hat{R} v_{hi}}{\hat{V}}$.