

### Abstract:

A model linking maturity indicators and the restrictions they impose on the apple yield assigned to a long-term storage (AppleLS) was studied. Using a three-step approach “maturity restrictions – parameterization - empirical distribution functions”, parameters of theoretical distributions for fitting AppleLS were estimated. Packinghouse data for three varieties over five years was used to building separate models for three periods of harvest. Normal and lognormal fits to empirical distribution functions of AppleLS were tested. A good agreement between the empirical distribution functions and their lognormal fits (high p-values for  $\chi^2$  test) was observed in all studied cases. The established lognormal character of the distribution of fruit quantity in relation to maturity restrictions at harvest can be applied to modeling the quality of fruit handled in packinghouses.