Example of Unequal Probability Sampling

A simple way for foresters to estimate the net volume of standing trees is by measuring the diameter at breast height and the tree height and then observing visible defects and other characteristics of the tree. The actual volume of usable timber can only be found after the tree is felled and processed in boards. Listed below are the estimated net volume (in board feet) of twenty trees $\hat{y}_i$, probabilities p_i, cumulated probabilities, and the actual net volume (in board feet) of some selected trees, y_i.

Tree Number	$\hat{y}_i$	p_i	Cumulated Probabilities	y_i
1	130	0.0217173	0.02172	
2	450	0.0751754	0.09689	474
3	268	0.0447711	0.14166	
4	227	0.0379218	0.17959	215
5	190	0.0317407	0.21133	
6	432	0.0721684	0.28349	
7	501	0.0836953	0.36719	
8	397	0.0663214	0.43351	
9	248	0.0414300	0.47494	
10	184	0.0307384	0.50568	
11	230	0.0384230	0.54410	
12	287	0.0479452	0.59205	
13	312	0.0521216	0.64417	
14	260	0.0434347	0.68760	
15	410	0.0684932	0.75610	
16	325	0.0542934	0.81039	
17	422	0.0704978	0.89759	
18	268	0.0447711	0.92566	
19	250	0.0417641	0.96742	210
20	195	0.0325760	1.00000	