The experimental data shown in our manuscript are grouped in .zip files corresponding to their appearance in Figures. The values of optical density have been transformed using formula in Figure S8 of reference 22 (Dai et al, Science 2012).

Figure 1: "data_deterioration.zip"

Filename convention: "subset/all_DF/SUC.txt".

DF: dilution factor. SUC: sucrose.

"subset_DF.txt", "subset_SUC.txt": a subset of 20 replicate populations.

"all_DF.txt", "all_sucrose.txt": the entire ensemble of 48 replicate populations (DF) or 36 replicate populations (SUC).

In each .txt file, the lines correspond to different replicates. The values of optical densities on each line correspond to observations over a span of 21 days (DF) or 24 days (SUC). Analysis based on the entire ensemble of replicate population is shown in Figure S6.

Figure 2-4: "data_SUCbifurcation_sucrose.zip"

Filename convention: "sucrose#_day#.txt".

Sucrose concentration=[2.0, 1.0, 0.8, 0.6, 0.5, 0.4, 0.3, 0.2, 0.16]% is labeled from # 1 to 9.

In each .txt file, there are 8 lines corresponding to 8 replicates. The 11 values of optical densities on each line correspond to 11 different initial cell densities on day 0. The different initial cell densities on day 0 (after divided by dilution factor) are differed by a factor of 2, with the highest one at 0.05.

The analysis on resilience and stability in Figure 3 and 4 are based on the same set of data. The data for DF are deposited on Dryad: **http://dx.doi.org/10.5061/dryad.p2481134**

Figure 2: "data_SUCindicator.zip"

Filename convention: "subset/all_sucrose#.txt"

Sucrose concentration=[2.0, 1.0, 0.8, 0.6, 0.5, 0.4, 0.3, 0.2, 0.16]% is labeled from # 1 to 9.

"all_sucrose#.txt", the entire ensemble of replicates.

"subset_sucrose#.txt", a subset of replicates, as explained in Figure S7.

In each .txt file, the lines correspond to different replicates. The 5 values of optical densities on each line correspond to observations over a span of 5 days after the population reached equilibrium.