WHY RESEARCH AN EGG STORAGE SOLUTION?

Our first attempt to address the “broody hen” problem was to design a solar-powered incubator that could be locally manufactured (Kisaalita et al., 2010; Some and Yoda, 2011). As outlined in the Background Section, the locally made solar energy-powered incubator achieved outstanding total hatchability rates (average of 85%). At the initial capital cost of $1,587, farmers could only secure it through a loan. Its major limitation was that during the warm season, where room temperatures rise above 25 oC (77 oF), the incubator is inoperable – it controls the incubation temperature with an on/off mechanism. To be able to operate at such high ambient temperatures, a source of cold air was needed. This would add to the initial capital cost pushing the complete system further out of reach for the target farmers. In establishing this practice, in the hands of farmers, we observed the egg storage problem that was yielding unacceptable hatchability rates. While waiting to fully load the incubators (capacity of 90 guinea fowl eggs), farmers would store their eggs at room temperature. With high temperatures in Burkina Faso, the eggs in waiting would undergo premature embryo development, yielding “early mortality” embryos in unhatched eggs at the end of the incubation.