Calibration-Optimization

- choosing parameter sets to use based on comparison with observed data
- calibration is very similar to sensitivity analysis
  - we could use LHS or SOBEL function to generate parameter sets and model runs
  - compute performance metrics for each run
  - graph and decide on a ‘cut off point’ of ‘acceptable parameters
- optimization
  - a way to to calibration - search procedure

Calibration in R

```
#' compute annual yield'
#'
#' Function to compute yeild of different fruits as a function of annual temperature and precipitatio
#' @param T annual temperature (C)
#' @param P annual precipitation (mm)
#’ @param crop.pars - list that contains the following
#' @param Topt optimal temperature (C)
#' @param max.water  maximum water requirement (mm)
#' @param ts slope on temperature
#' @param tp slope on precipitation
#' @param base.yield baseline yield  (kg)
#' @param irr  irrigation in (mm)
#' @return yield in kg


compute_yield = function(T, P, irr, crop.pars) {

with(as.list(crop.pars), {

nyears=length(T)
irr.peryear = rep(irr, times=nyears)
water.input = P+irr.peryear;
yield = ifelse(water.input < max.water,
        tp*water.input - ts*abs(T-Topt) + base.yield,
        tp*max.water - ts*abs(T-Topt) + base.yield )
yield=pmax(yield,0)
return(yield)
})

}
```