

IN SUPPORT OF SIMPLE ENVIRONMENTS

B. Bugbee

Crop Physiology Laboratory, Utah State University, Logan, UT 84322-4820,-USA.
(Email: bugbee@cc.usu.edu)

Horticulturists are keen observers of plant/environment responses in the real environment of the field. Plant physiologists use purified enzymes in simple glass test tubes. Both approaches advance the discipline, but I believe that scientists should work at as simple a level as their training allows.

Plant Scientists should think more and measure less. Measurements are real - thinking is simple. The most simplified tests of hypotheses are done using theory or models. Einstein used the simplest possible laboratory apparatus - he never made a measurement. His laboratory was chalk, a blackboard, and his mind. Young scientists would do well to heed his advice, "Everything should be as simple as possible, but no simpler."

In our quest for big research budgets, we forget that simple environments are low cost environments - and this facilitates replication. Smaller is often simpler. With the same research budget, one could buy and operate a hundred small, simple growth chambers - or one chamber the size of Biosphere2.

We have passed on a legacy of empirical techniques to young plant scientists, and we often deserve the "spray and pray" label for our research. Too often we add sensors and blinking lights to our growth chambers without thinking about how the additional measurements will help us better test our hypotheses.

Our approach to research seems to follow our approach to writing. Our sentences are adorned with clutter. We are a society strangling in unnecessary words and pompous jargon. We should strive to make our research, like our writing, concise, simple, and elegant.