

Common Lab Report Mistakes Answer Key

*Disclaimer: All rewrites contain fictional hypotheses, data, and citations.

Introduction

1.

The theoretical background is quite broad, and as a result the opening statement is vague because it is difficult to encompass the research that has been done in this field within a few sentences. The student needs to narrow down the scope of the background information they would like to cover. Also, many of these statements need citations for support.

Rewrite: Several studies have been conducted on the effects of competition and mutualism between agricultural crop plants and weeds. These include the work of Harte (1993) on wheat, as well as that of Kinzig (1994) on rice. Such studies are often conducted to determine the optimum combination of species density for maximum productivity.

2.

The student should not be listing tube numbers. Instead, he or she should be generalizing the differences between the tubes. He or she needs to find a description to encompass the general experimental design.

Rewrite: I hypothesize that components A, B, and C are necessary for photosynthesis to occur. I predict that in the absence of any of these components, light absorbance will be constant, thereby indicating a lack of photosynthesis. I predict that light absorbance will decrease as time progresses when all components are present.

Methods/ Procedure

3.

This description contains too much detail. The student should emphasize the experimental design rather than the chronological step-by-step procedure they performed in lab.

Rewrite: We planted two replicates of four different levels of conspecific competition for wheat and mustard, respectively. The number of competitors ranged from none to 16. In addition, we planted two replicates of three different levels of heterospecific competitors for wheat and mustard, respectively. The number of competitors ranged from two to 16. All pots were placed in a greenhouse and provided with equivalent levels of light and water.

Results

4.

The student should not be interpreting the results as interpretations belong in the Discussion section. Descriptions of figures usually go like this: (Y variable) (increased, decreased, did not vary...) according to an increase in (X variable) (Figure #). For instance, I would rewrite the second sentence as follows: Per plant biomass of both *Brassica* and *Triticum* decreased with increasing intraspecific competition (Figure 1).

Discussion/ Conclusions

5.

The overall language needs to be more objective. The student also needs to support his or her statements, by either referring back to their own Results or to sources cited in their Introduction.

Rewrite: My initial hypothesis, that components A, B, and C were necessary for photosynthesis to occur, was supported. The tubes that were missing any of these components showed constant levels of light absorption (Figure 1). Only when all three components were present did light absorption decrease with time (Figure 2). Overall, my results support what is known about Photosystem I, that A and B react with C to reduce NADPH⁺.

6.

The student is making vague speculations and his or her suggested further experiments do not really differ from the one they just performed. He or she needs to make informed and concrete observations based on what they learnt from the experiment, and extrapolate onto a different system or more specific circumstance for instance.

Rewrite: This experiment could be repeated on a larger scale and soil samples could be collected before, during, and after the experiment to determine if the competitors are competing for specific soil nutrients. In addition, N, P, and K could be supplemented to a subset of replicates in order to determine if this will decrease the effect of competition. The results from such experiments would have commercially important implications for agriculture.