

Regulated Research Institutional/Industrial Setting Form (1C)

This form must be completed AFTER experimentation by the adult supervising the student research conducted in a regulated research institution, industrial setting or any work site other than home, school or field.

Student's Name(s) Sara Mc Sweeney

Title of Project Increasing the Desiccation Tolerance of Eragrostis tef through Exogenous Application of Absciscic Acid to Ensure Food Security

To be completed by the Supervising Adult in the Setting (NOT the Student(s)) after experimentation:

(Responses must be on the form as it is required to be displayed at student's project booth; please do not print double-sided.)

The student(s) conducted research at my work site:

1. Did you or your proxy (e.g. graduate student, postdoc, employee) mentor or provide substantial guidance to the student researcher?

☒ Yes ☐ No

- a. If no, describe your and/or your institution's role with the student researcher and his/her project (e.g. supervised use of equipment on site without ongoing mentorship and sign below.

- b. If yes, complete questions 2 –5.

2. Is the student's research project a subset of your ongoing research or work? Use questions 3, 4 and 5 to detail how the student's project was similar and/or different from ongoing research or work at your site.

☒ Yes ☐ No

3. Describe the independence and creativity with which the student:
a. developed the hypotheses or engineering goals for the research project

Ms McSweeney had provided the research question she wanted to answer upon our initial meeting. I then refined the research question by including a specific focal species and germplasm type. The investigative question was 90 percent developed by her.

- b. designed the methodology for his/her research project

Ms McSweeney has had some previous experience with experimental design. Based on this experience she was able to think systematically and logically about how she would conduct her experiment with very little prompting and guidance. She only required assistance with technical

- c. analyzed and interpreted data

Ms McSweeney analysed her data on her own after I had taught her how to use a statistical program with mock data. Her analysis was then checked by me and all of her outputs were correct. She had an adequate understanding of the theory behind running an ANOVA

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4. Detail the student's role in conducting the research (e.g. data collection, specific procedures performed). Differentiate what the student observed and what the student actually did.

Ms McSweeney conducted all of the technical work and data collection herself. We had used the first two weeks of her stay to allow her practice and familiarity with lab techniques, lab etiquette and data collection methods on germplasm of another species as the species she was working on is extremely precious and hard to come by. She first observed me working on tissue culture, spectrophotometry, chlorophyll extractions and measuring electrical conductivity. She also observed raw data collection and how this would be transferred to excel spreadsheets which had equations to transform raw data. We then practiced statistical analysis on mock data. After this time Ms McSweeney was able to conduct the same techniques, data collection, analysis and interpretation on her own with very little guidance. She showed a particular aptitude for tissue culture and very adeptly managed to induce calli in over 100 seeds without any sign of contamination. A difficult feat for even a seasoned researcher.

5. Did the student(s) work on the project as part of a group?

If yes, how many individuals were in the group and who were they (e.g. high school students, graduate students, faculty, professional researchers)?

☐ Yes ☒ No

Ms McSweeney worked alone with my supervision. She was the first high school student invited to conduct research in our laboratory.

I attest that the student has conducted the work as indicated above and that any required review and approval by institutional regulatory board (IRB/IACUC/IBC) has been obtained. Copies are attached if applicable.
I further acknowledge that the student will be presenting this work publicly in competition and I have communicated with the student research regarding any requirements for my review and/or restrictions of what is publicized.

Cassandra Naidoo

Supervising Adult's Printed Name

University of Cape Town

Institution

University of Cape Town, Private Bag X3, Rondebosch, 7701,

Address


Signature

Dr

Title

12/12/2019

Date Signed (must be after experimentation) (mm/dd/yy)

naidoo@cassandra@gmail.com

Email/Phone