

# MUTANT MILLETS

## Journal Instructions Spring 2015



In addition to the data collection sheet, you may choose for students to keep a journal throughout your experiment. Scientists use journals for long term studies to record everything that they do and observe. By documenting how the plants are changing each week, the journal will allow them to keep a timeline of growth and development of their *Setaria* plants.

The following are a list of questions to get your students started with their journals.

### Background Research:

- What is a model organism? What characteristics do model organisms share?
- Research *Setaria*. What have you learned about this plant?
- What is a mutation? Are mutations good or bad for organisms' survival?
- What is a genotype? Phenotype? How does the environment affect phenotype (think of your wild type plants from last semester)?
- What is a dominant allele? Recessive allele?
- Design your ideal crop plant. What characteristics would you want it to have? Think about size, what it would take for a farmer to take care of the plant, growth rate, etc.
- Design your ideal biofuel plant. What characteristics would you want it to have? Think about size, what it would take for a farmer to take care of the plant, growth rate, etc.
- What kind of mutant phenotypes do you think would be beneficial for scientists to find and study in our model plant, *Setaria*?

### *Setaria* Observations:

- Do all of the plants in a family look similar? Or do certain plants within a family appear different?
- Take pictures of your plants or draw them in your journal. Label any features you can recognize.
- Calculate growth rate (change in plant height in centimeters over time).

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- Describe the appearance of the leaves.
- Measure the length of the leaves when fully mature.
- What kind of new mutations do you observe in the mutant families?
- Why don't all of the plants in a mutant family have the same mutation? Does this mean the mutation is dominant or recessive?