A Study of the Effectiveness of Gibberellin on (*Setaria viridis)* Millet Plants

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Introduction

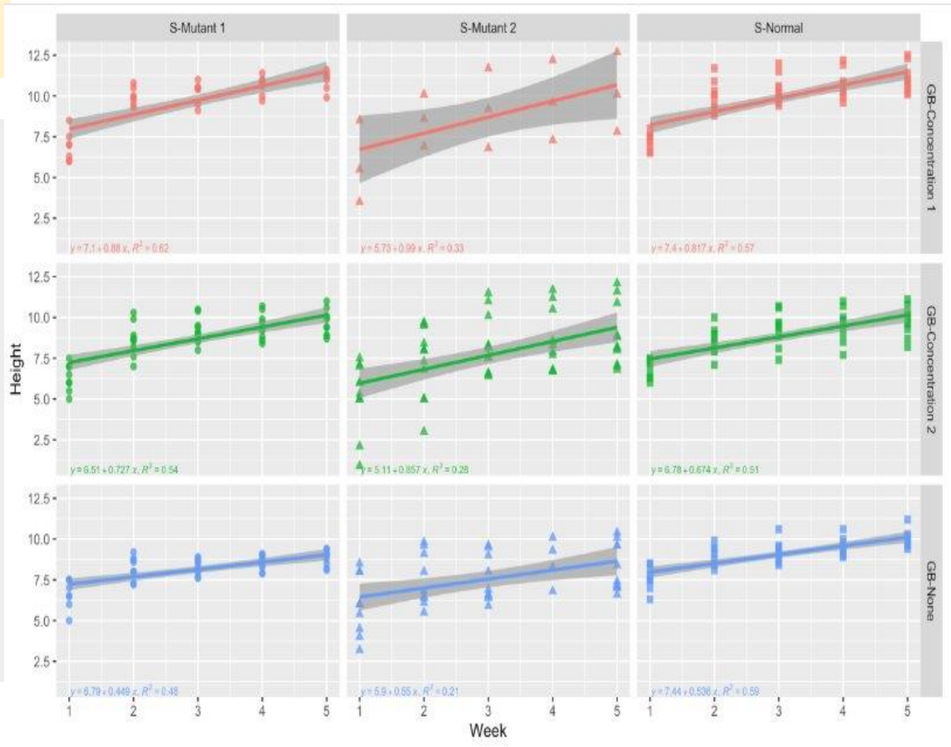
- Gibberellin is a chemical compound that is known to have an effect on increasing plant growth
- In some plants such as peas and maize this effect is so large that dwarf mutants are able to grow at the same rate as normal varieties of the same plant
- Some mutant varieties of maize have been seen to respond well to gibberellin while some did not respond at all
- In this experiment three types of Millett seeds, 2 mutant varieties and 1 normal variety were compared

Purpose

- This experiment seeks to test whether dwarf varieties of *Setaria viridis* experience the same effect when exposed to gibberellin in varying quantities
- Null Hypothesis: All three seed varieties tested in this experiment are the same seed and experience the same growth under Gibberellic acid
- Alternative Hypothesis: All three seed varieties are not the same seed type and experienced different growth rates when exposed to Gibberellic acid

Results

- The graphs below show the average growth over the treatment period for all collected samples
- Each column corresponds to one seed variety and each row to one gibberellic acid treatment level
- The results show that the Mutant 1 variety when given gibberellin more closely mirrored the growth rate of the normal plant, while when no gibberellin was added neither mutant seed variety matched the growth rate of the normal plants



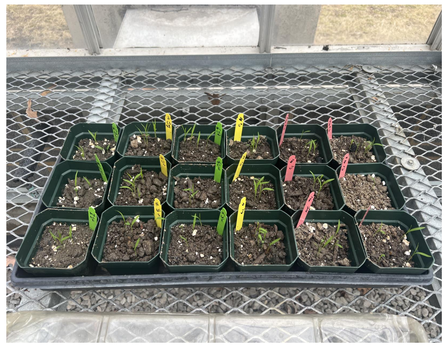
Materials and Methods

- We created three different types of millet samples using two different forms of mutant seeds and normal seeds
- 6 plants of each of the three varieties were sectioned into separate pots, and then given different treatment levels of gibberellin
- Two plants in each group were given no gibberellin, two were given gibberellin once a week and two were given gibberellin daily Monday-Friday
- The height of each plant was then recorded once a week throughout the trial period

Discussion

- Mutant 1 had a higher growth at all three treatment levels nearly matching the normal seed growth, suggesting that its mutation was a lack of gibberellin production
- Mutant 2 had the lowest growth at all three treatment levels suggesting that its mutation was a lack of gibberellin receptors making it so growth could not be stimulated with manual gibberellic acid addition

Height of all samples observed before and after treatment period



References

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