CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
35107

Project Title
From Seed to Sod: An Examination of Seed Germination and Its Effectiveness in Establishing Riparian Buffers

Abstract

Objectives/Goals
The purpose of this project was to see if grass grown from seed can reduce the amount of nitrate and phosphate runoff from fertilizer application. This is a follow-up study of last year#s project where commercially grown sod was tested to see if plants could act as a filter to reduce chemical runoff. This year, scientific testing materials were acquired to get more accurate results. This year#s hypothesis states that grass grown from seed will effectively reduce the amount of chemical runoff in the water samples.

Methods/Materials
Grass seed was planted in five plastic troughs, which had been altered with PVC pipe. Then organic and inorganic fertilizers were added. Water was poured onto each trough in regular intervals. The water was tested by using nitrate and phosphate test kits.

Results
This study found that the grass grown from seed resulted in reduced amounts of nitrates, measuring 25% of last year#s results. Phosphates this year were higher than last year for unknown reasons. It was observed that grasses could be used to establish riparian buffers around natural waterways to absorb some of the nitrates and phosphates found in fertilizer to help reduce the toxic effects of chemical pollution.

Conclusions/Discussion
The extreme amount of pollutants entering waterways from fertilizer has had catastrophic effects on water quality, marine life, and human health. Since grass grown from seed can be used to establish riparian buffers to absorb excess nitrates and phosphates, this means that farmers can plant riparian buffers around agricultural areas to help reduce the amount of toxic chemicals that could enter waterways causing environmental damage. While it was exciting to see how well plants can filter environmental toxins, it is important to remember that despite their effectiveness, chemical runoff will always occur with fertilizer application.

Summary Statement
By comparing the data sets from 2014 with this year's results, it was found that planting grass grown from seed to establish riparian buffers around an agricultural area is effective in reducing chemical runoff.

Help Received
Parent supervised during testing because the test kits contained harmful chemicals.