CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

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Project Number
J2103

Project Title
Preventing Pumpkin Decomposition: The Effectiveness of Home Remedies

Abstract

Objectives/Goals
The objective of this project was to determine which home remedies prevent carved pumpkin decomposition the best (as measured by amount of mold and wall softness).

Methods/Materials
There were five conditions in this project. Four of the conditions were recommended (but un-tested) home remedies for preventing carved pumpkin decomposition including acrylic spray, petroleum jelly, bleach, and lemon juice. The fifth condition was a control group (no remedy). Fifty identical pumpkin samples were carved from 10 fresh pumpkins (5 Luminas and 5 Jack-O-Lantern) for this project. Ten samples (one sample from each pumpkin) were placed into each of the five conditions. Two ratings (amount of mold and wall softness) were made for each of the 50 pumpkin samples for 14 days. This resulted in a total of 1400 data observations.

Results
Overall , the petroleum jelly was the best remedy for preventing mold and wall softness. The other remedies appeared to increase decomposition. Yet, the control condition had better mold ratings than the petroleum jelly after day 8 and better wall softness ratings for the first 12 days. However, when the results were examined separately by pumpkin type, it appeared that the remedies worked better for the Lumina (white) pumpkins than they did for the Jack-O-Lantern (orange) pumpkins. Specifically, for the Lumina pumpkin samples, the petroleum jelly and bleach prevented mold better than the control and the acrylic spray and bleach prevented wall softness better than the control.

Conclusions/Discussion
These results suggest that petroleum jelly can be an effective home remedy in preventing mold. Several of the other recommended home remedies, including acrylic spray and lemon juice, actually seem to make the pumpkin decompose more quickly, especially for the popular Jack-O-Lantern (orange) pumpkin type. However, the type of pumpkin varietal seems to make a difference in whether a home remedy is effective in preventing decomposition and this is an important factor to consider in future research.

Summary Statement
This project examined the effectiveness of using petroleum jelly, acrylic spray, bleach, and lemon juice to prevent carved pumpkins from decomposing (as measured by mold growth and wall softening).

Help Received
Father helped apply acrylic spray. Dr. James Farrar loaned the digital scales. Dr. Brian Tsukimura reviewed procedures to make sure we followed safety guidelines. Grandfather helped us fix a problem with the Excel formatting. Mothers helped with the printer (printing on photo paper) for the display