

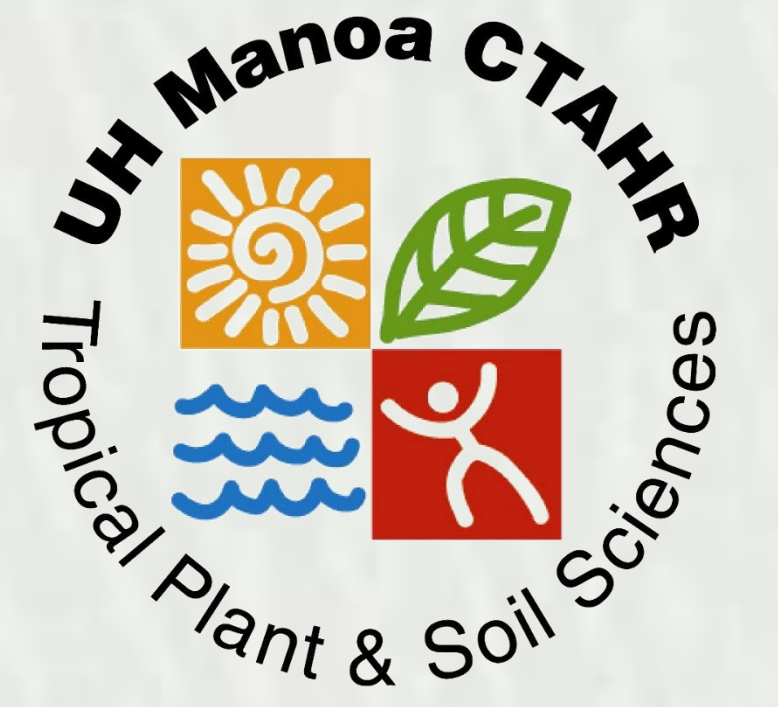


Rooting response of Pacific lovegrass (*Eragrostis deflexa*) clumps to rooting hormone soaks

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Introduction

Pacific lovegrass (*Eragrostis deflexa*) is a perennial bunchgrass endemic to the islands of Molokai, Maui, Lanai and Hawaii.

It is a rare species, found in mesic to dry forests along the leeward sides of the islands.

Its fine leaves and upright growth (Figure 1) make it a potential native ornamental grass for landscaping and containers.



Figure 1. Pacific lovegrass (*Eragrostis deflexa*) in cultivation.

Pacific lovegrass can be propagated from seed. Asexual propagation through division of clumps has not been explored.

Rooting hormone (i.e. Dip 'N Grow) soaks have been shown to improve rooting of asexually propagated native Hawaiian grasses, namely 'aki'aki (*Sporobolus virginicus*) and kāmanomano (*Cenchrus agrimonoides*). It may have potential use in asexual propagation of Pacific lovegrass.

Objective

To evaluate to use of bare root clumps and rooting hormone soaks in propagating Pacific lovegrass.

Methods and Materials



Pacific lovegrass (USDA Hoolehua Plant Materials Center accession from Pohakuloa) clumps, grown in concrete benches for six months, were dug up using a pitch fork.



Leaves of the clumps were trimmed to 35 cm tall and soil was removed by spraying the root ball with water.

Clumps were divided into smaller pieces, with each clump containing 10 to 15 shoots.



Roots were cut to 10 cm in length.

Clumps were soaked for 24 hours in either of the following treatments: 1) water, 2) 1:20 dilution of Dip 'N Grow [500 ppm indolebutyric acid (IBA), 200 ppm naphthalene acetic acid (NAA)] or 3) 1:10 dilution of Dip 'N Grow [1000 ppm IBA, 500 ppm NAA].

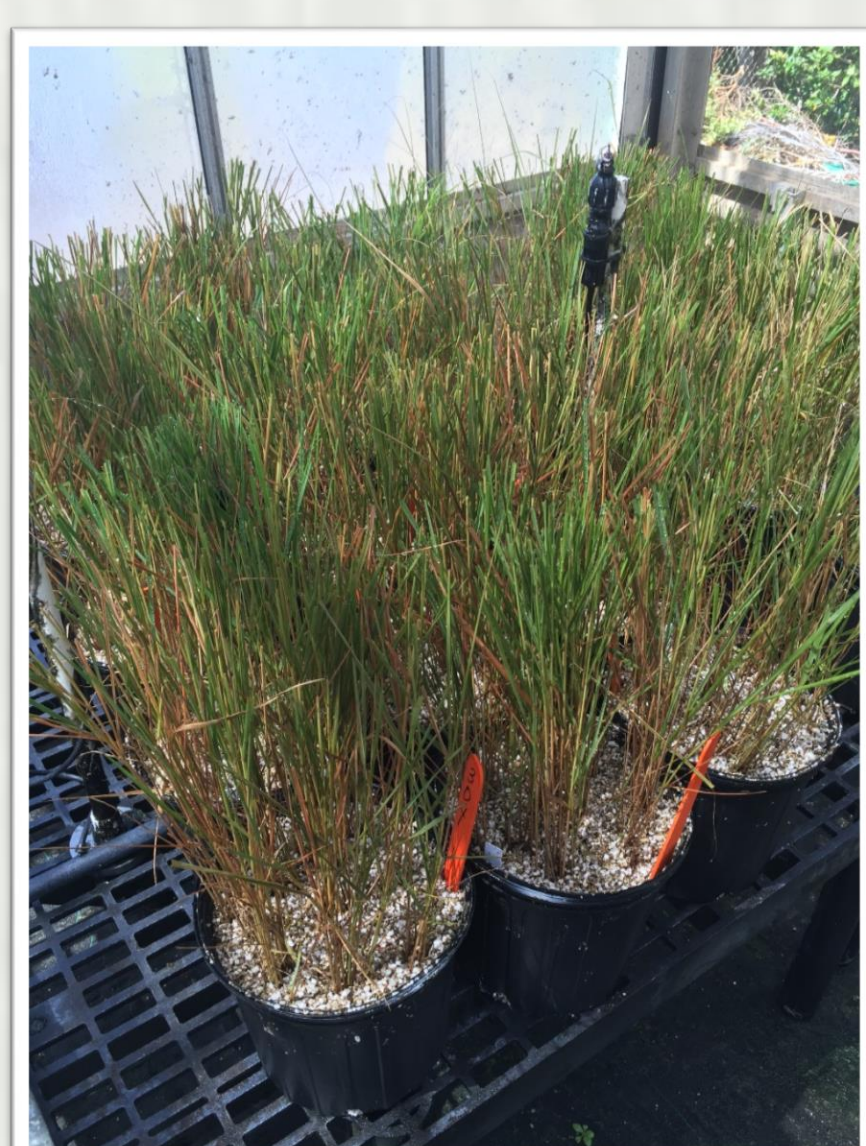
Unsoaked clumps served as a control treatment.

Clumps were planted in a 1:1 by volume perlite:vermiculite mix. Each pot contained 10 clumps each. Treatments were replicated thrice.

Pots were laid out in a randomized complete block under a mist bench, misting for 15 seconds every 5 minutes.

Percent of clumps showing new roots and number of green shoots were recorded and analyzed 45 days after planting.

Due to zero survival in the rooting hormone treatments, the analysis of results focused on water soaked and unsoaked clumps.



T-tests were used to compare differences in percent rooting and green shoot number between soaked and unsoaked clumps. Green shoot number was square root transformed prior to analysis.

Results and Discussion

Rooting hormone soaks were detrimental to the plants (Figures 2 and 3).

Clumps soaked in 1:10 (500 ppm IBA, 200 ppm NAA) and 1:20 (1000 ppm IBA, 500 ppm NAA) dilutions of Dip 'N Grow had 0% survival.

Soaking clumps in water for 24 hours prior to planting negatively affected the survival of clumps. Water soaked clumps exhibited 3% rooting.

Unsoaked bare root clumps exhibited 70% rooting.

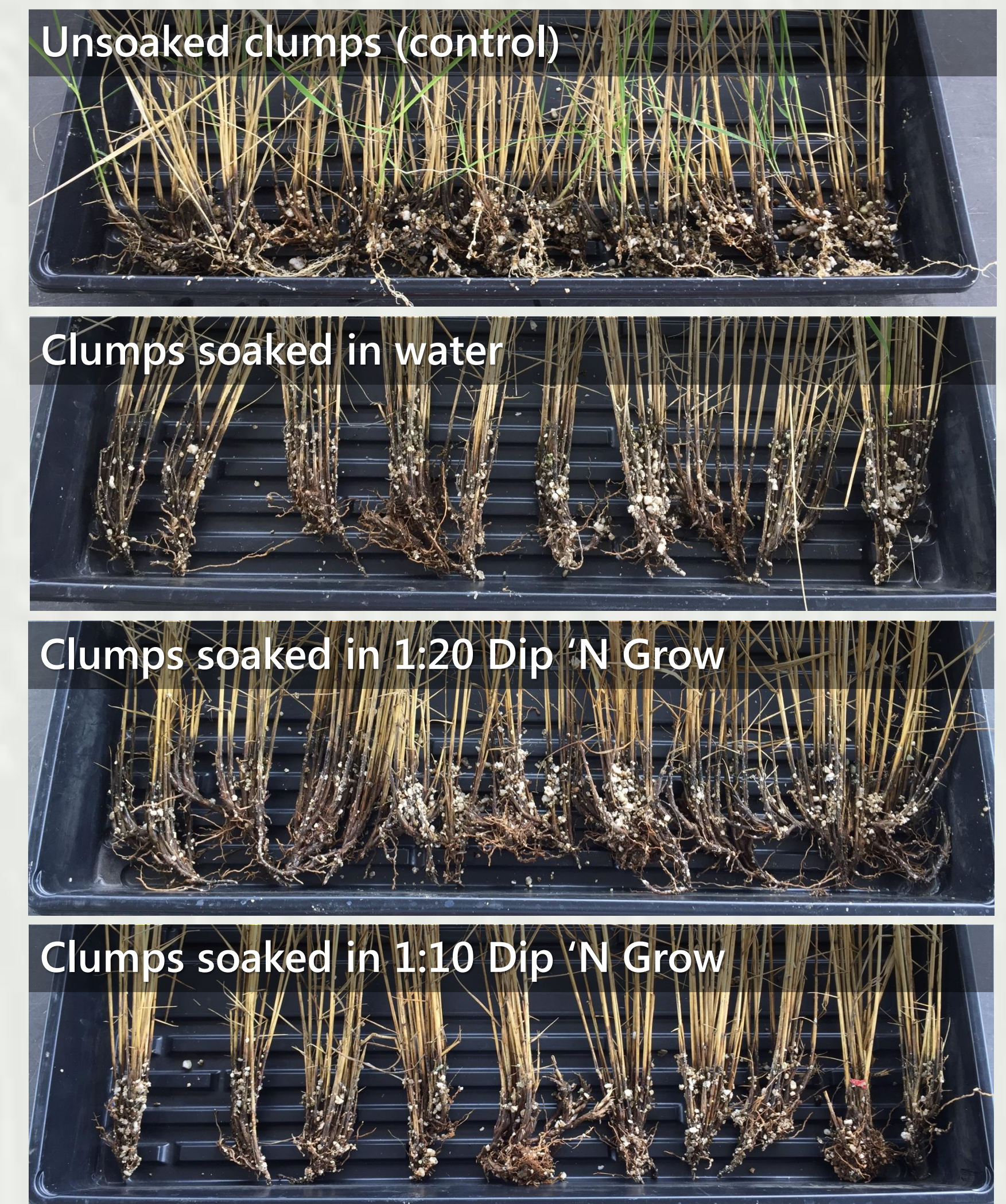


Figure 2. Root and shoot growth of Pacific lovegrass (*Eragrostis deflexa*) (top-bottom): unsoaked clumps (control), water soaked clumps, clumps soaked in a 1:20 dilution of Dip 'N Grow [500 ppm indolebutyric acid (IBA), 200 ppm naphthalene acetic acid (NAA)] and clumps soaked in a 1:10 dilution of Dip 'N Grow [1000 ppm IBA, 500 ppm NAA]. Clumps soaked in the two Dip 'N Grow dilutions did not survive.

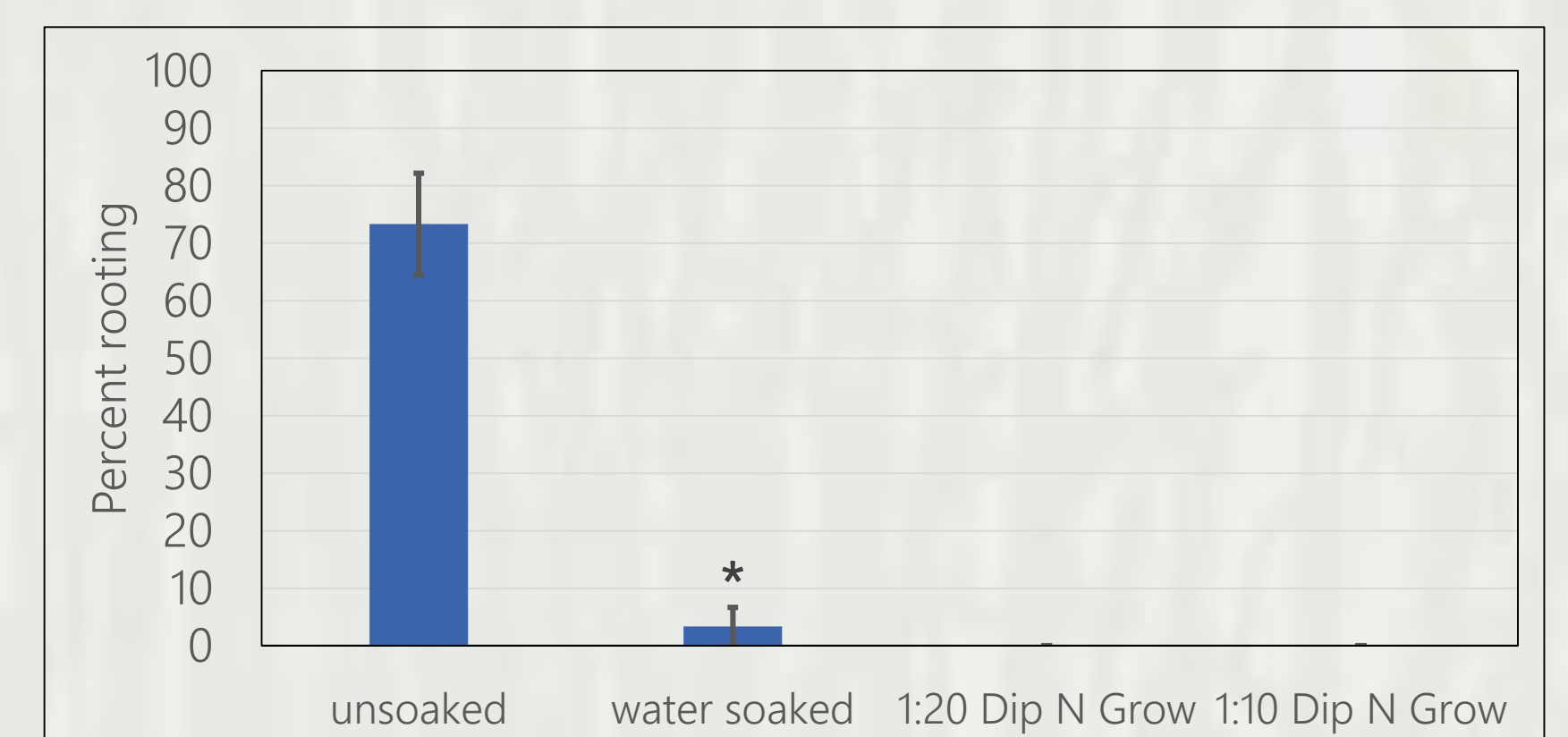


Figure 3. Percent rooting of Pacific lovegrass (*Eragrostis deflexa*) (L-R): unsoaked clumps (control), clumps soaked in water, clumps soaked in a 1:20 dilution of Dip 'N Grow [500 ppm indolebutyric acid (IBA), 200 ppm naphthalene acetic acid (NAA)] and clumps soaked in a 1:10 dilution of Dip 'N Grow [1000 ppm IBA, 500 ppm NAA]. Clumps soaked in the two Dip 'N Grow dilutions did not survive and were excluded in the analysis. Percent rooting in water soaked clumps (with asterisk) is significantly different ($P = 0.0018$) from those observed in the control as determined by T-Test ($n=3$).

Mean number of green shoots were significantly higher in the unsoaked clumps in contrast to those observed in water soaked clumps (Figure 4).

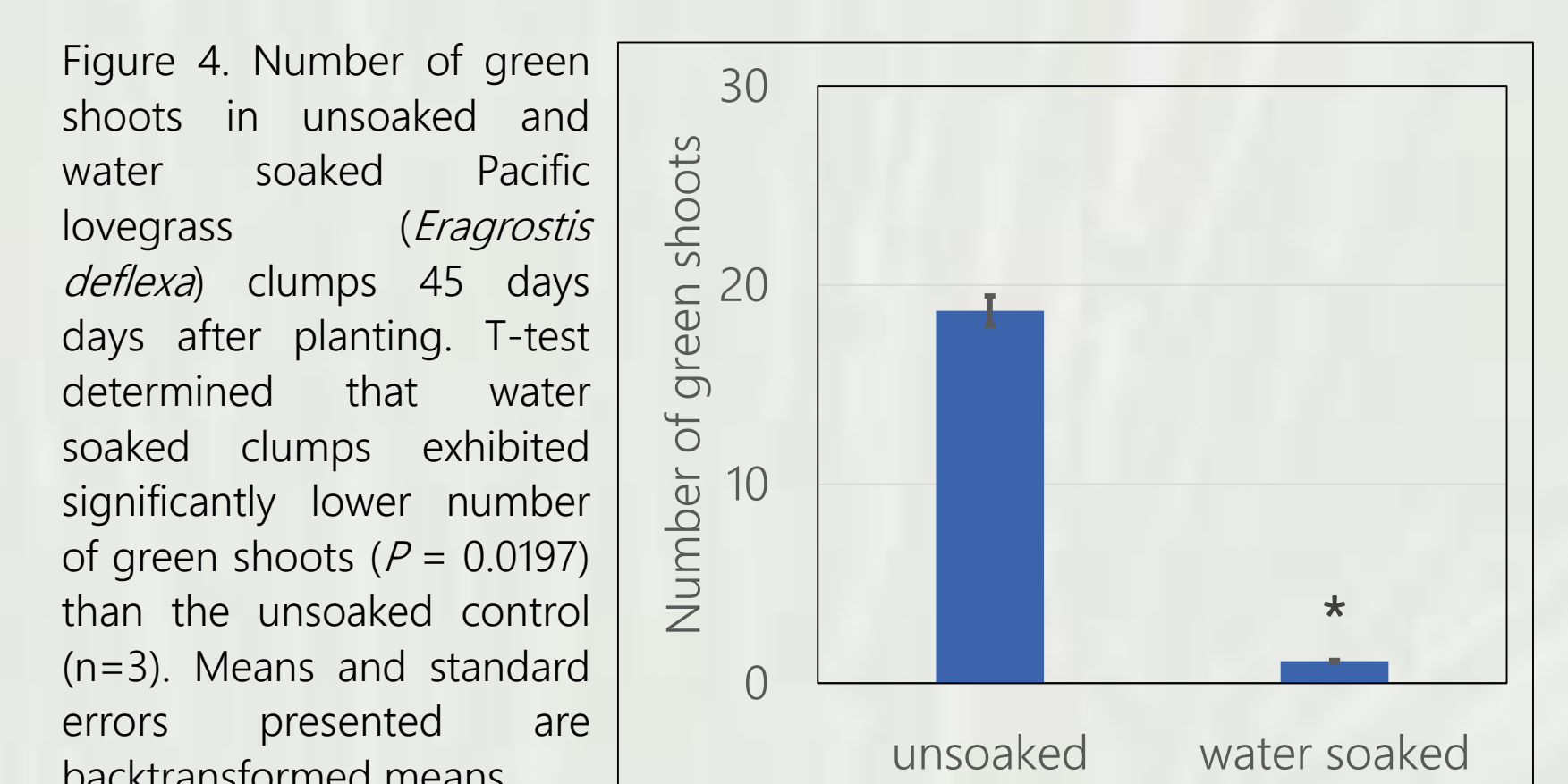


Figure 4. Number of green shoots in unsoaked and water soaked Pacific lovegrass (*Eragrostis deflexa*) clumps 45 days after planting. T-test determined that water soaked clumps exhibited significantly lower number of green shoots ($P = 0.0197$) than the unsoaked control ($n=3$). Means and standard errors presented are backtransformed means.

Conclusion

Division of clumps may be useful for propagating Pacific lovegrass.

Moderate success can be achieved with division of clumps. Soaking the clumps in water or rooting hormone is detrimental.

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