

Using Invasive Algae as a Local Organic Source of Potassium for Crop Production in Hawaii:

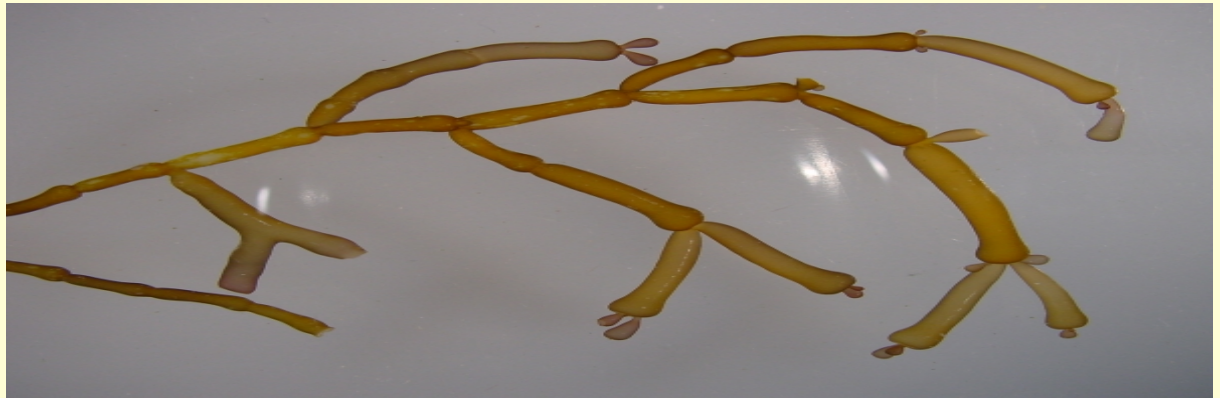


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Major invasive species:

Gracilaria salicornia
(Gorilla Ogo)



Kappaphycus alvarezii
(Kappaphycus)



Eucheuma denticulatum
(Eucheuma)



The biomass of these invasive species have Potassium(K) ranging from 14-20%.

Recycling them & using it in crop production may address the problems of reliance on expensive inorganic fertilizers.

Source :<http://www.nceas.ucsb.edu>



Super Suckers are giant, barge-mounted vacuum cleaners that suck invasive algae off the reef (above left). Bags of invasive algae (above right) are then loaded into their trucks by local farmers for them to use on their crop fields.

Photo courtesy: DLNR/Division of Aquatic Resources



A sustained effort to remove the algae by various groups each year has produced few tonnes of the wet weight biomass that must be disposed.

Photo courtesy: Waikīkī Aquarium

Greenhouse Trials preparations



Greenhouse Trials photos



4TH WEEK END



Kappa @ 150 lb/ac



KCI @ 150 lb/ac

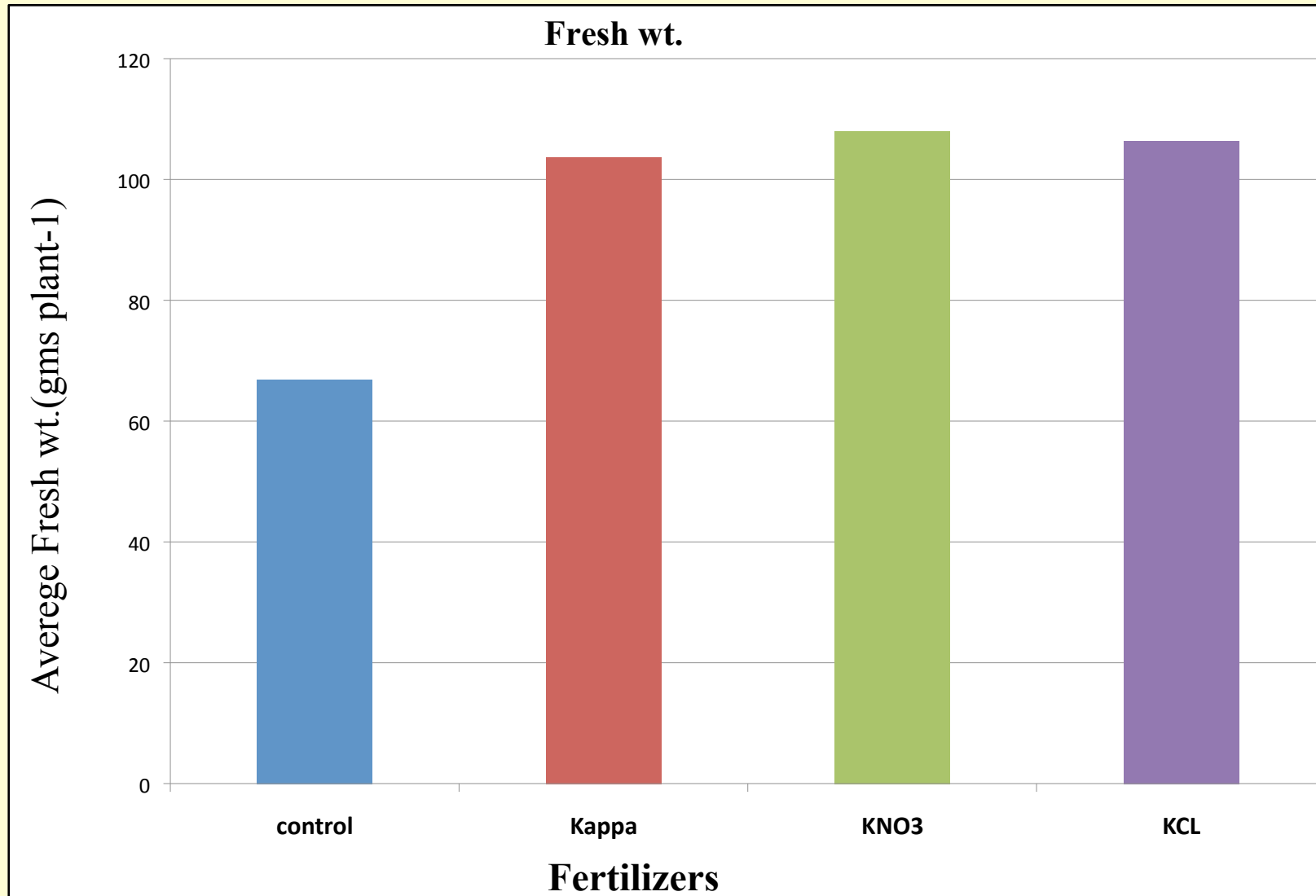


Kappa @ 200 lb/ac

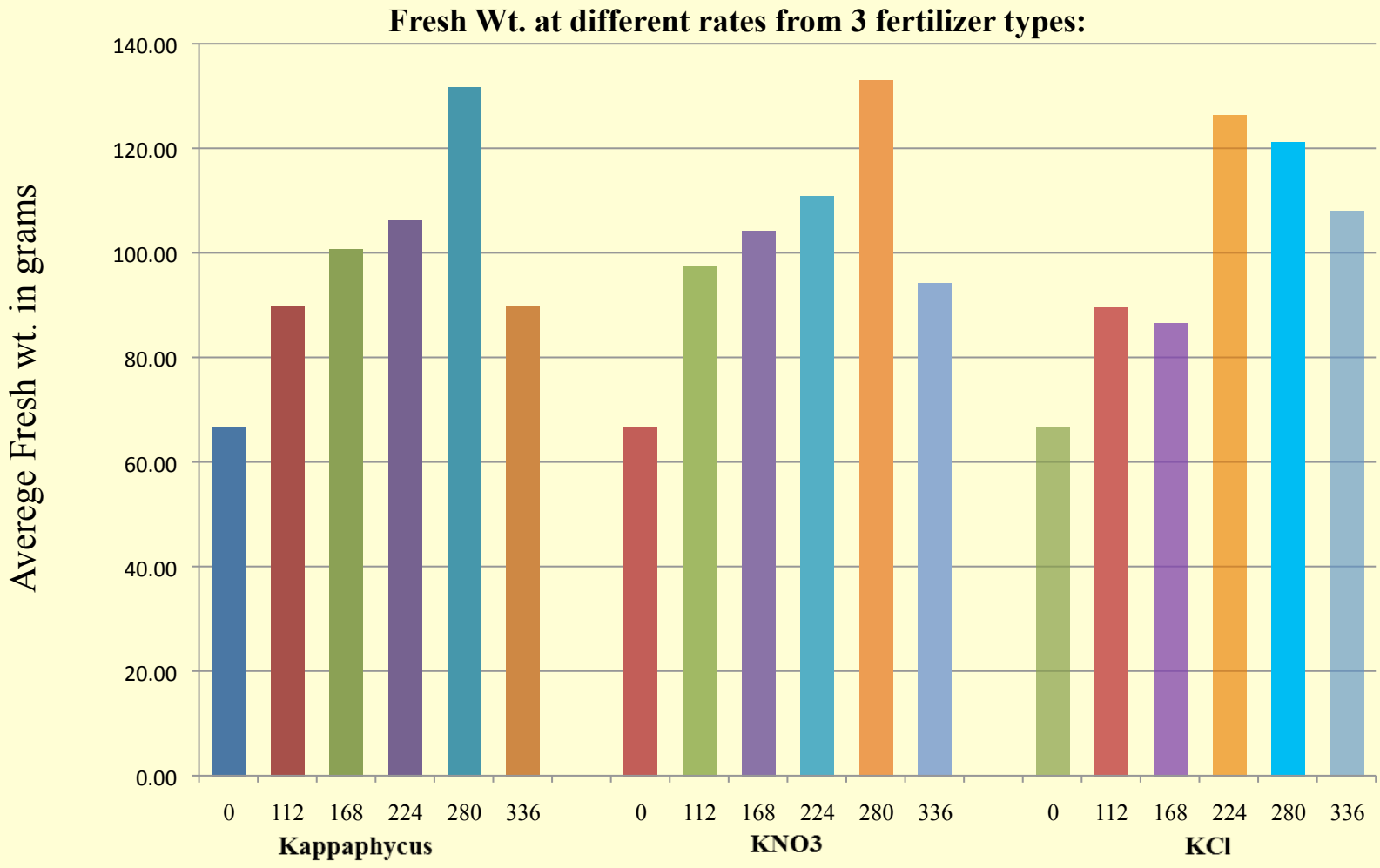


KCI @ 200 lb/ac

3rd GH results:



3rd GH results



K rates (kgs/ha) through 3 types of fertilizers

CONCLUSION

- The invasive algae positively influenced the growth & K nutrition of pak choi. Response was greater when algae was applied at the rate of 224 -284 kg/ha.
- The consistent results show these invasive algae species have potential to be used as a replacement for synthetic potassium fertilizer in vegetable production & may be more beneficial when used for crops with high potassium requirements.
- The potential of using these algae biomass as a crop nutrient has not been fully exploited due to the lack of scientific data on factors contributing to the growth & their mode of action.

Field trials with Sweet Potato



Photo credit: Jeana Cadby

Field trials findings:



- ◆ Sweet potato did show a significant growth response and Increasing rates of applications of seaweed increased sweet potato yield.
- ◆ No negative effects on sweet potato growth were found due to seaweed applications. Seaweed was a good source of rapidly available K.

Source: Jeana Cadby

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