

# Evaluating Invasive Algae species as Local Organic Sources of Potassium (K) in Hawaii



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# Background

- ◆ The invasive algae is one of the greatest threats to Hawai'i's coral reefs.
- ◆ Major invasive species are *Eucheuma denticulatum*, *Kappaphycus alvarezii* and *Gracilaria salicornia*



- ◆ Marine algae have beneficial effects when used in crop production (Zodape, 2001).
- ◆ Species of kelp, *Ecklonia maxima* has improved the growth of tomato seedlings when applied as a soil drench (Crouch *et al.*, 1992).

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



# Introduction

- ◆ Millions of pounds of the biomass of these species harvested every year and this has 14-20% Potassium.
- ◆ Hawaiian farmers need to increase local food production and start using more locally available inputs as it may help local growers to reduce their reliance on imported expensive fertilizers (Radovich *et al.*, 2012).



Photo courtesy: DLNR/Division of Natural Resources (DLNR)



# Objective

The overall objective of this research was to evaluate three invasive algae species on yield and K mineral nutrition of pak choi.

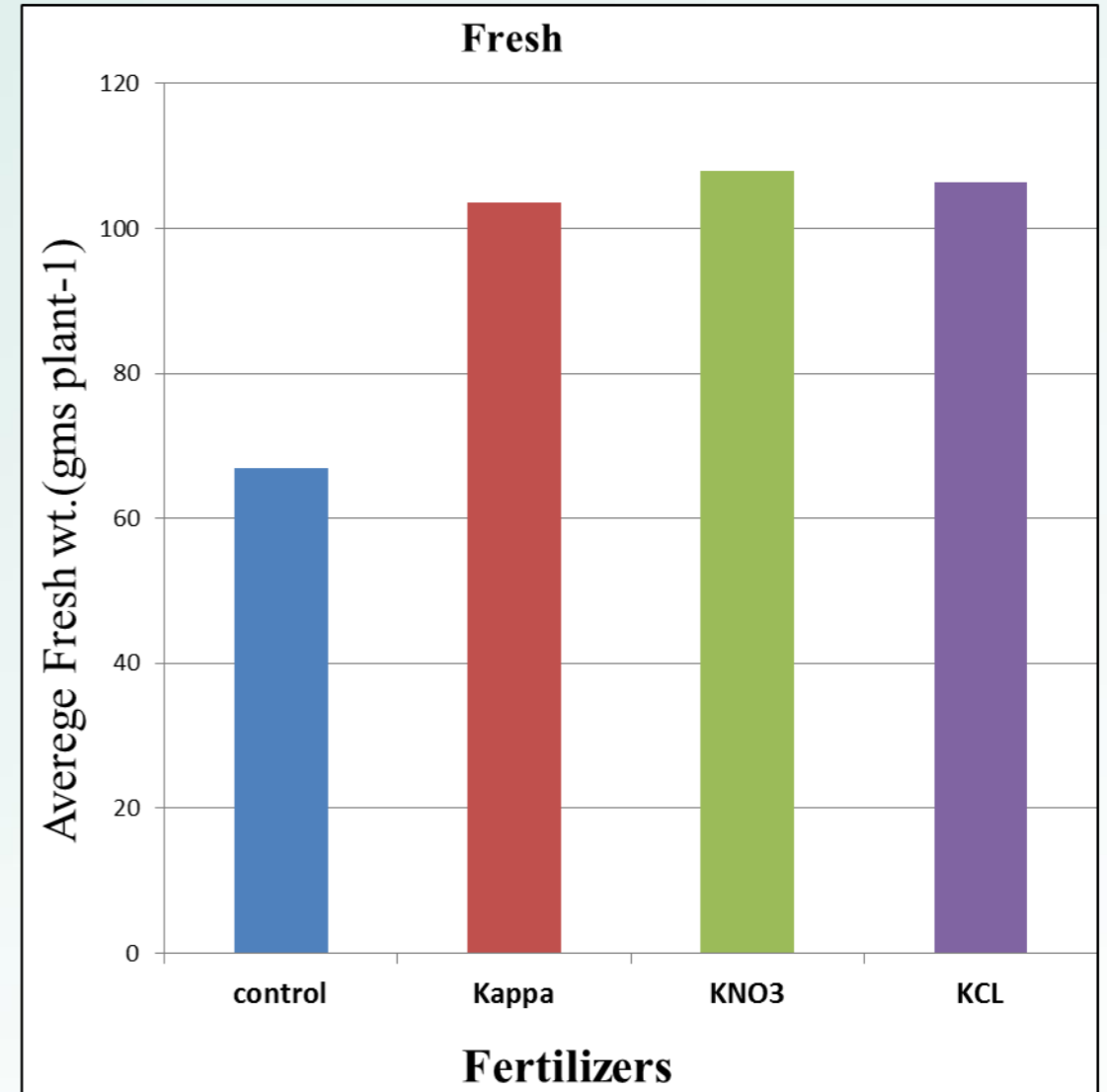
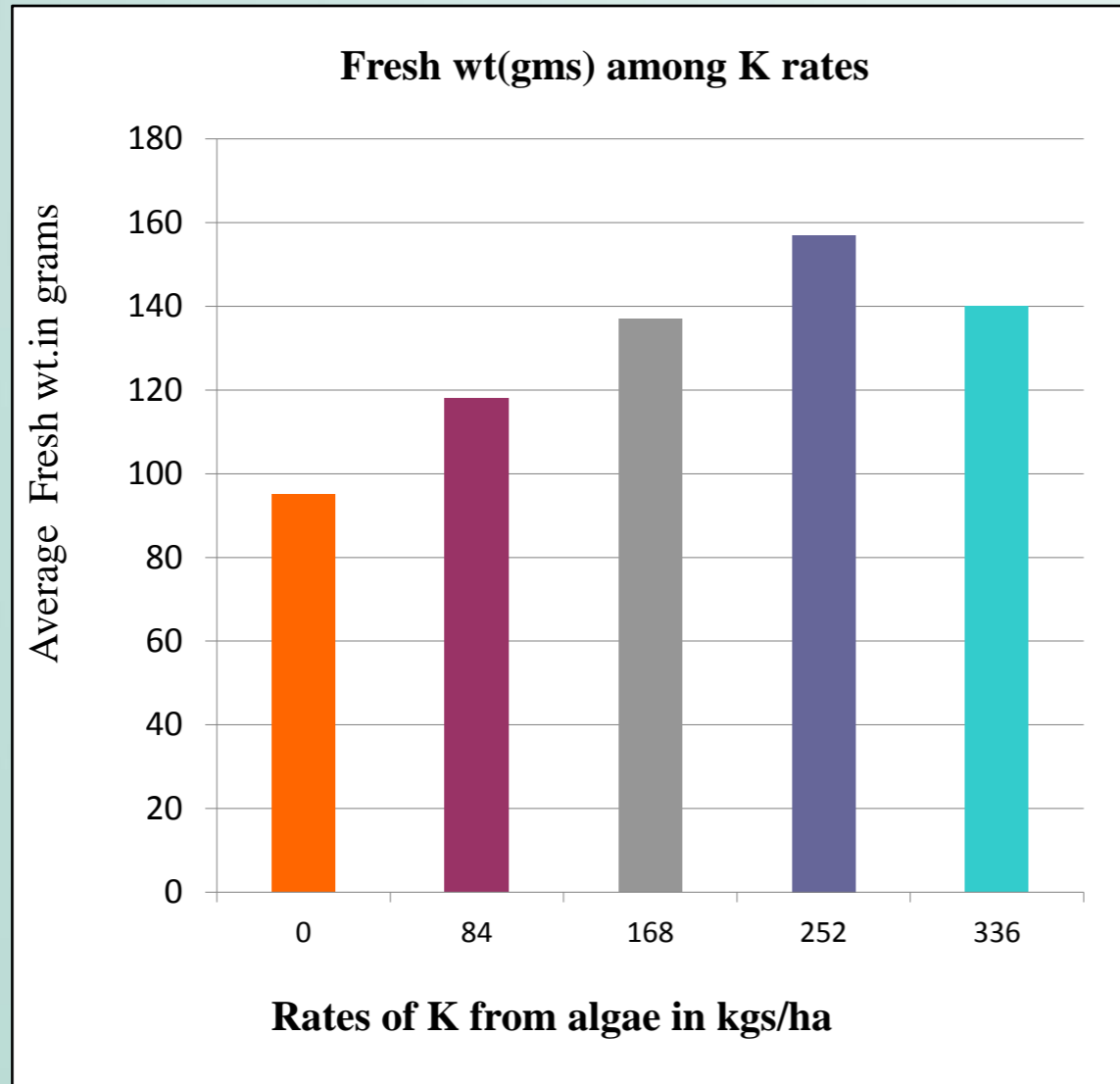


# Materials & Methods

- ◆ 3 Greenhouse trials completed.
- ◆ **K Rates:** 75, 100, 150, 225 & 300 lb/ac.
- ◆ K from algae species were compared with commercial synthetic K source from  $\text{KNO}_3$  &  $\text{KCl}$  fertilizers.
- ◆ Yield & tissue K data were analyzed and compared among fertilizer types.



# Results



## Conclusions

- ◆ The invasive algae positively influenced growth & tissue K concentration of pak choi.
- ◆ The consistent results show that invasive algae have potential to be used as a replacement for synthetic K in crop production.
- ◆ Further studies are needed to confirm the generalizability of these results.



# Acknowledgements

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Thanks and Mahalo for Listening!

