

Effect of spent mushroom compost mulch on weeds and vegetable crops

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Introduction

Fresh spent mushroom compost:

- Composted wheat straw, chicken manure, and peat, previously used as a substrate for mushroom production
- Rich in nutrients, organic matter, and soluble salts
- Locally-available waste product that may be used as a mulch for weed suppression

Objectives

- Does fresh spent mushroom compost mulch...
 - ... reduce vegetable crop growth?
 - ... suppress weed abundance and diversity?
 - ... increase broccoli yield?
- What is the optimal application rate for mulching with spent mushroom compost?

Methods

Location: KPU Farm at the Garden City Lands, Richmond, BC

Procedures:

1. Bean, broccoli, salsola, and squash were grown in 0, 5, 10, or 20 cm of spent mushroom compost using a randomized complete block split-plot design with four replicates
2. Crop cover, weed abundance and diversity, and broccoli yield data were collected through the growing season
3. Data were analyzed by mixed-model ANOVA using the jamovi interface for R



Spent mushroom compost mulch suppresses weeds but not vegetables



Results

1. Canopy cover differed by crop, but not by mulch depth.

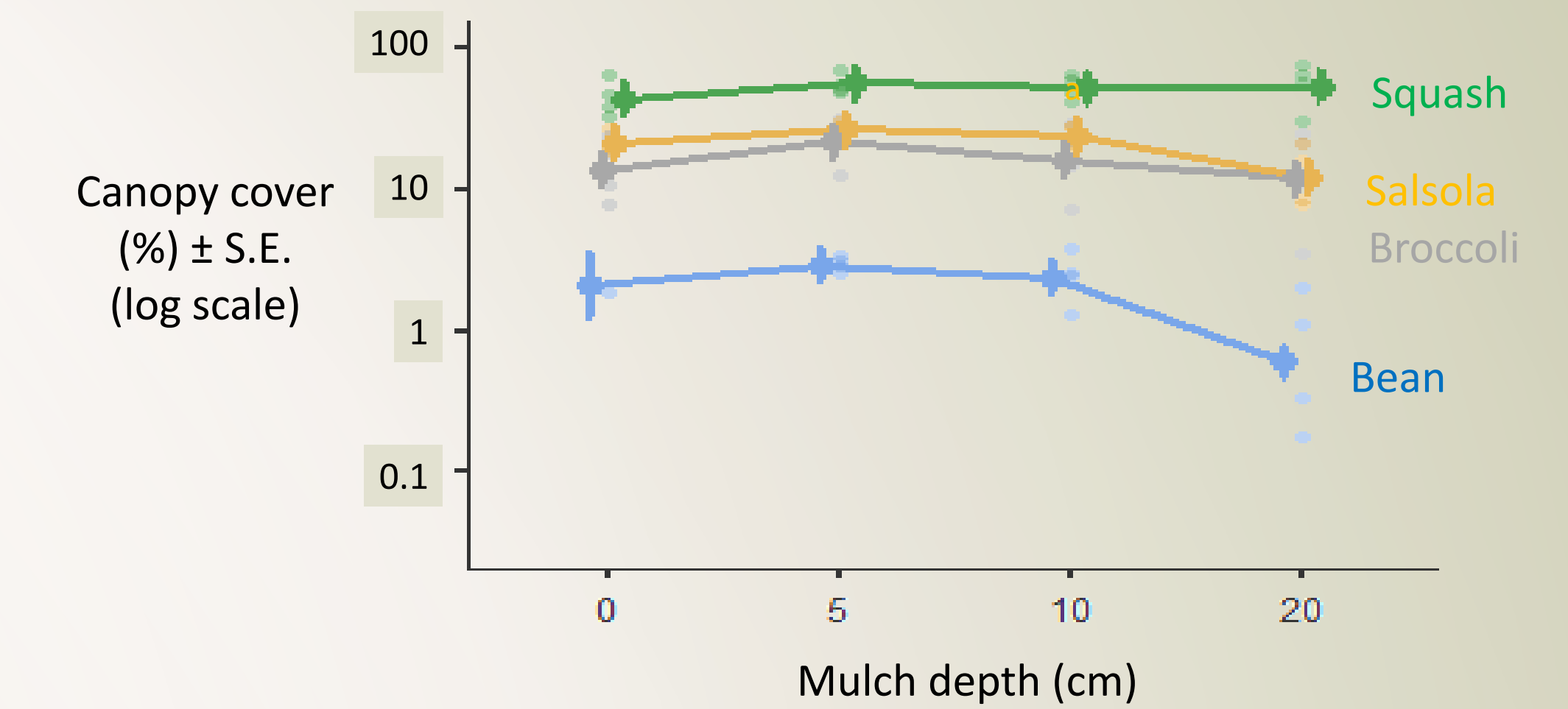


Fig. 1. Canopy cover 29 days after transplanting.

2. Mulch reduced weed abundance.

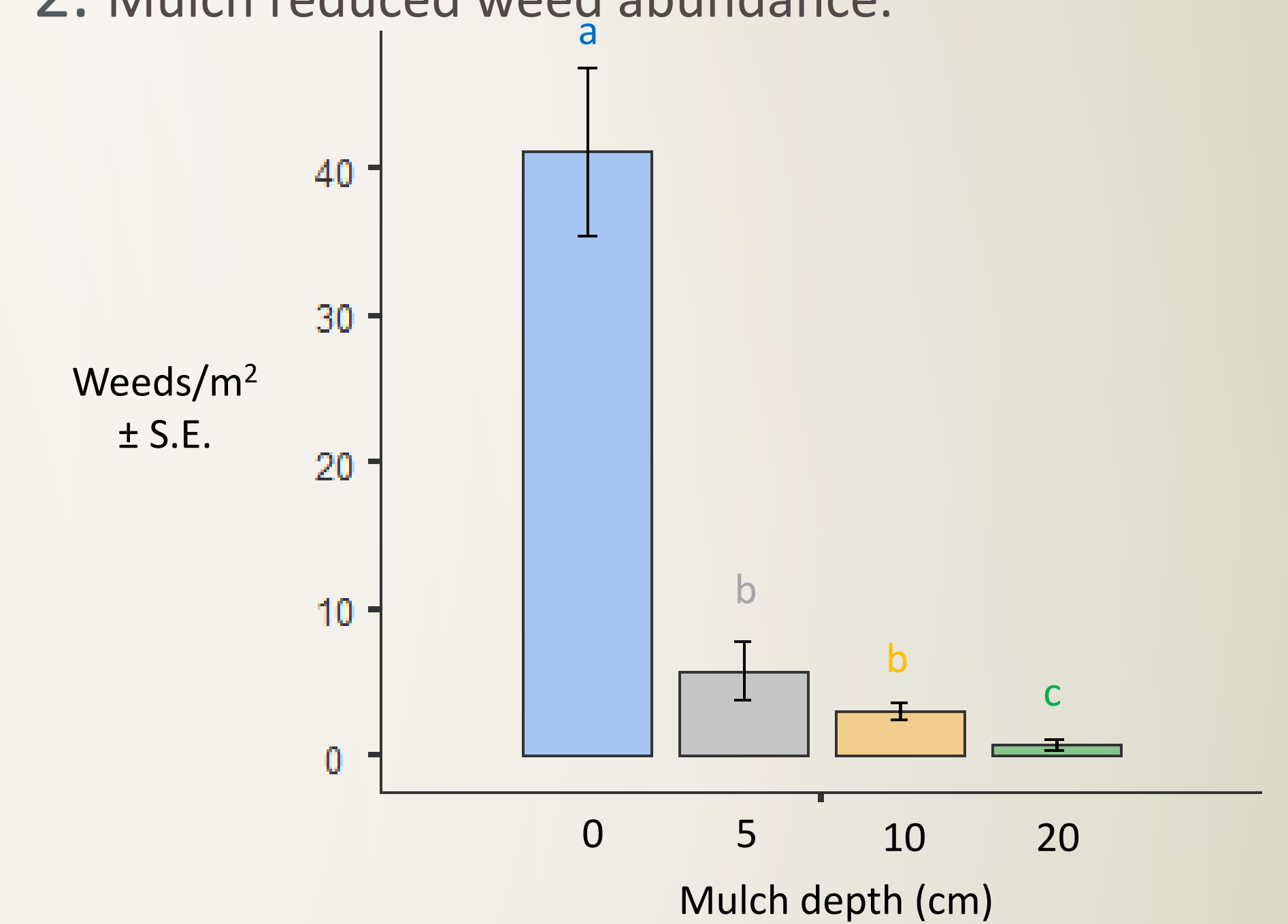


Fig. 2. Weed abundance by mulch depth. Bars labelled with the same letter do not differ significantly.

3. Mulch did not reduce broccoli yield.

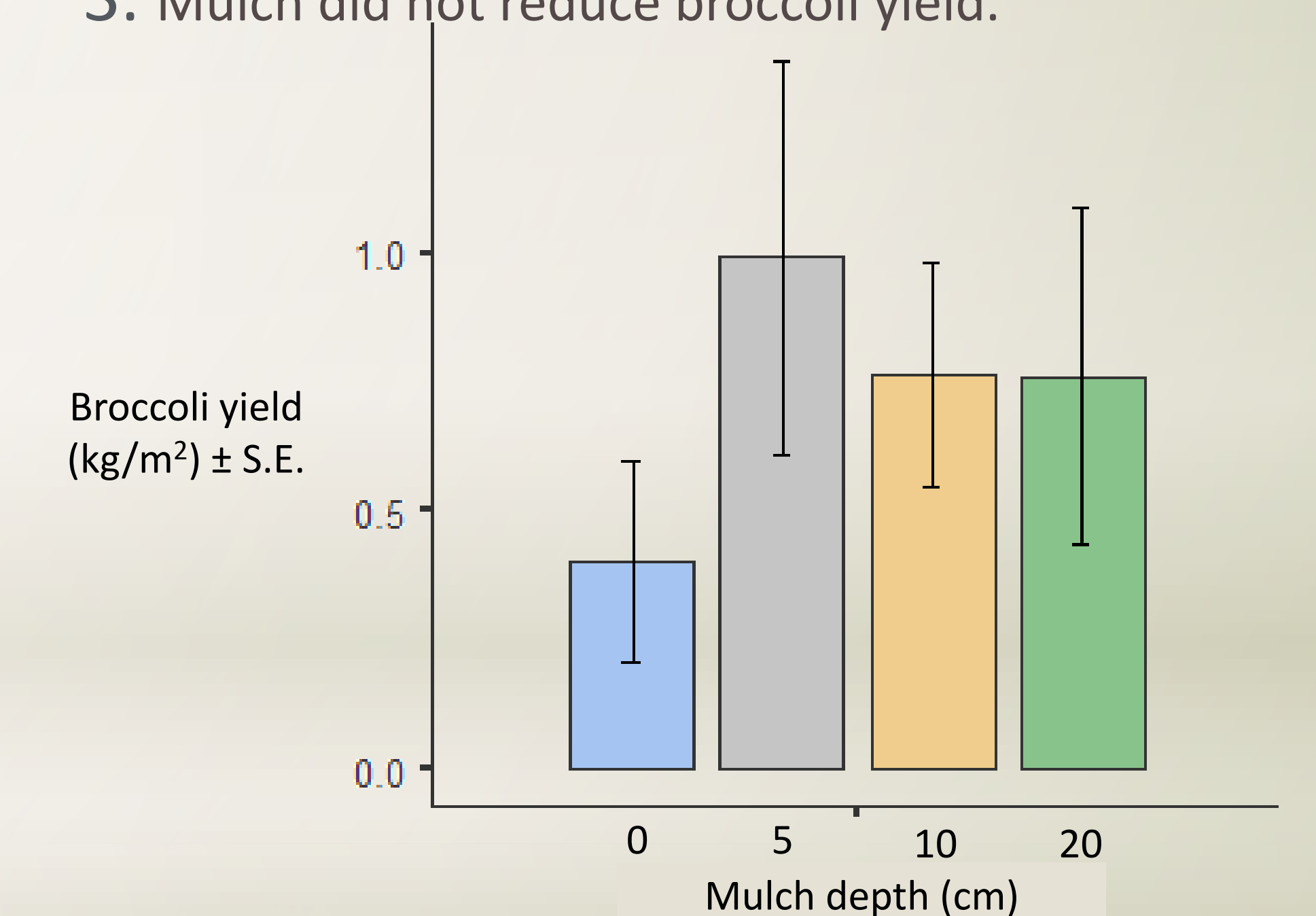


Fig. 3. Broccoli yield by mulch depth. Means do not differ significantly.

Conclusion

Fresh spent mushroom compost mulch...

- ... reduces weed abundance and diversity.
- ... does not reduce crop growth or broccoli yield.

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