

Genetic relatedness can limit reproduction in a wind-pollinated grass weed via pollen limitation.

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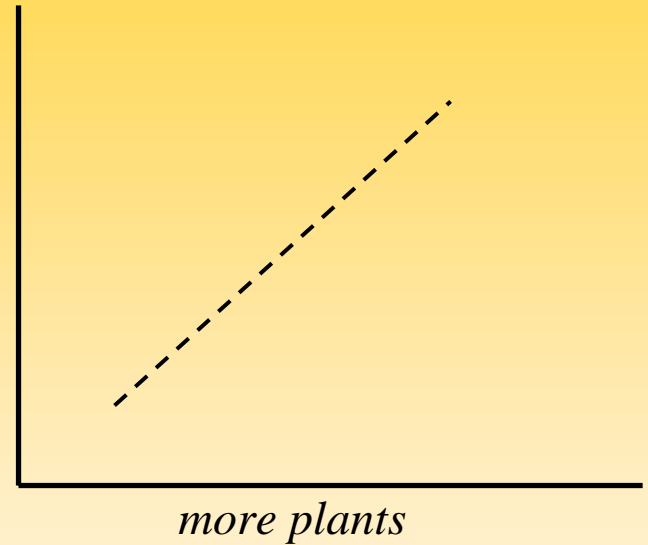
Did he just say:

“Small populations of weeds?”

- New introductions
- Long-distance dispersal / founders
- Widespread introductions can be clumped as effectively small populations (e.g. ornamentals)
- Origin of herbicide resistance or failure of control methods

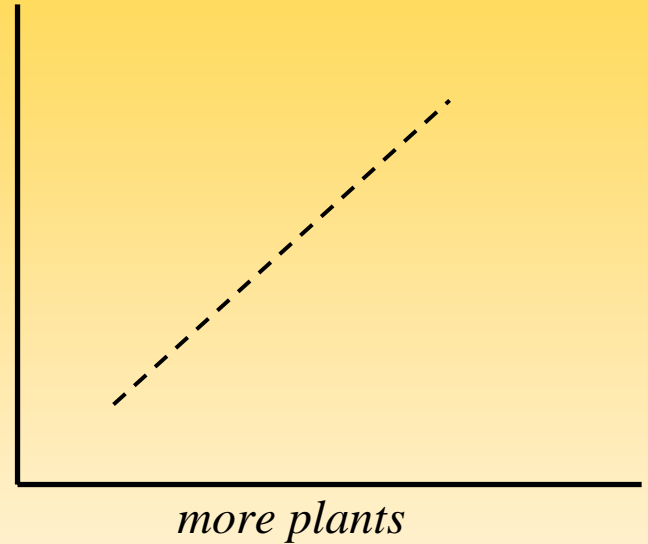
What happens in small populations?

- More plants = more seed



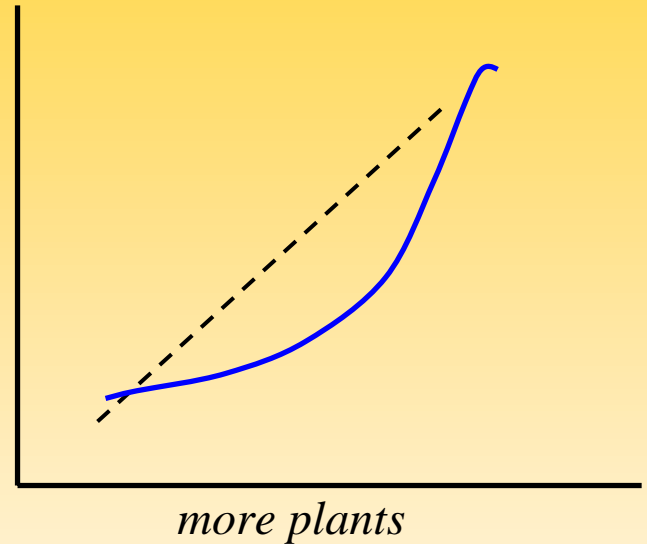
What happens in small populations?

- More plants = more seed
- An “**Allee Effect**” can break that proportion



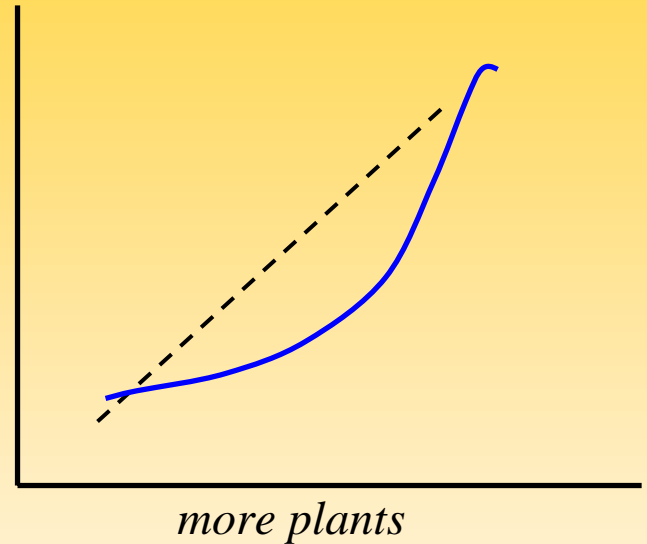
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What happens in small populations?

- More plants = more seed
 - An “**Allee Effect**” can break that proportion
 - Reproduction is depressed due to small population size
- Each additional plant makes the rest of them effectively **worth more**.



- **Pollen Limitation**

(not enough plants, so not enough pollen)

- **Inbreeding / genetic limitations**

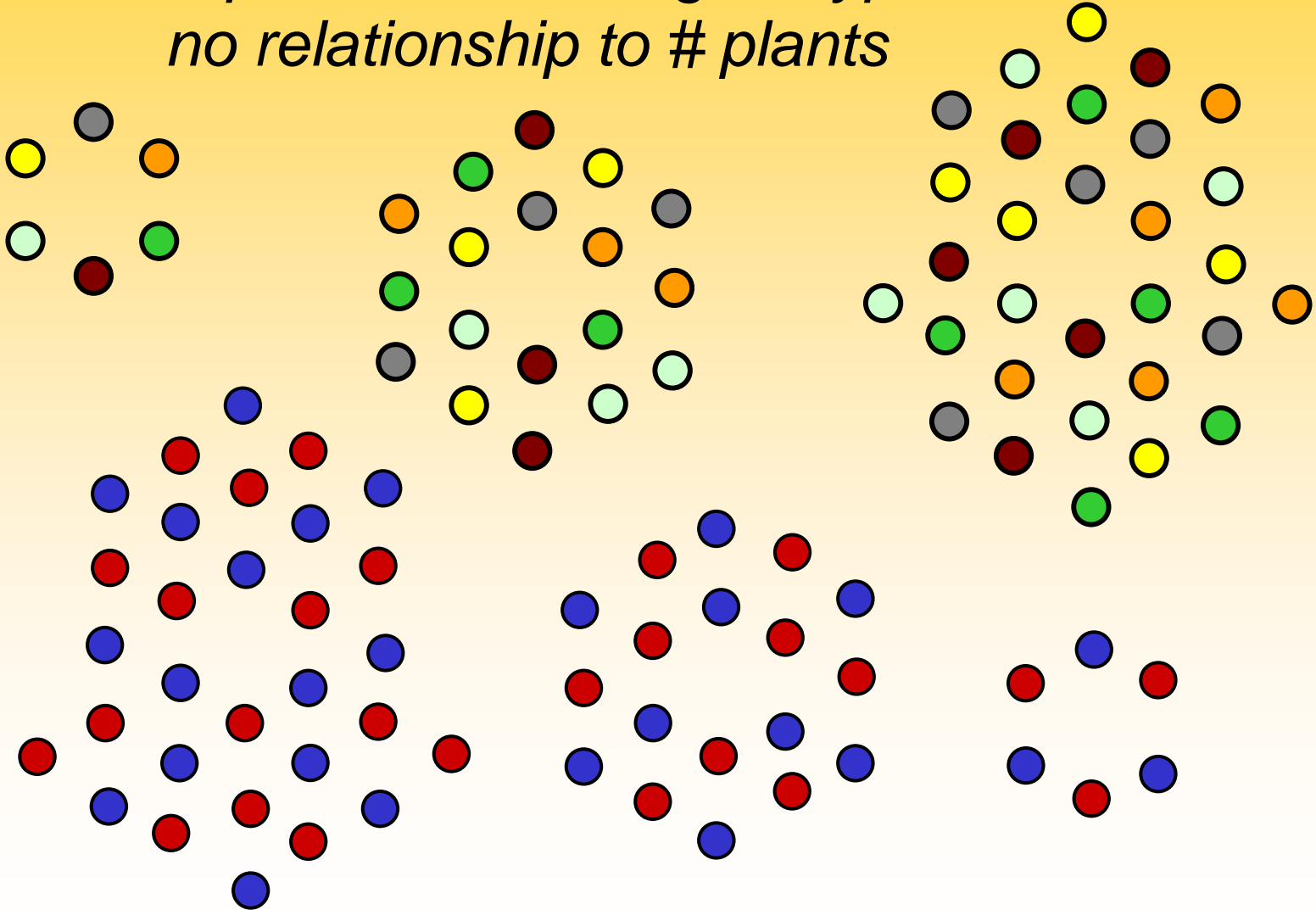
(not many plants, so they cannot hold much genetic variation. May be related to each other)





My plan: plant more weeds

*Clone plants – thus, # genotypes has
no relationship to # plants*



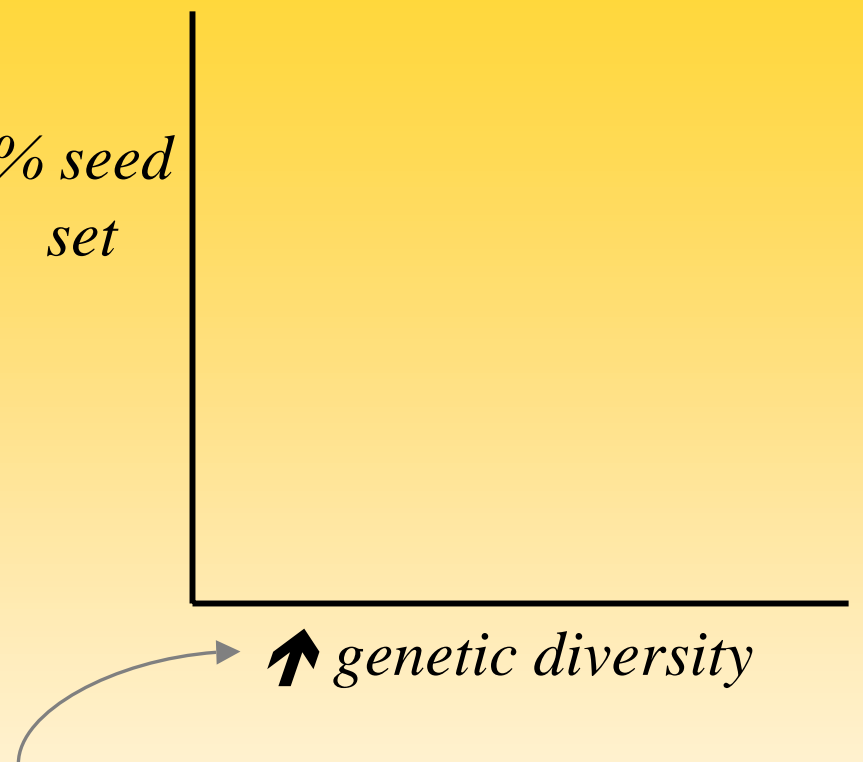


*% seed
set*



Percent of flowers maturing a seed





*% seed
set*

↑ *genetic diversity*

High to low relatedness of plants in plot



*% seed
set*

↑ population size

*Above-ground biomass in
plot,*

*as surrogate for amount of pollen
produced by plants in plot*



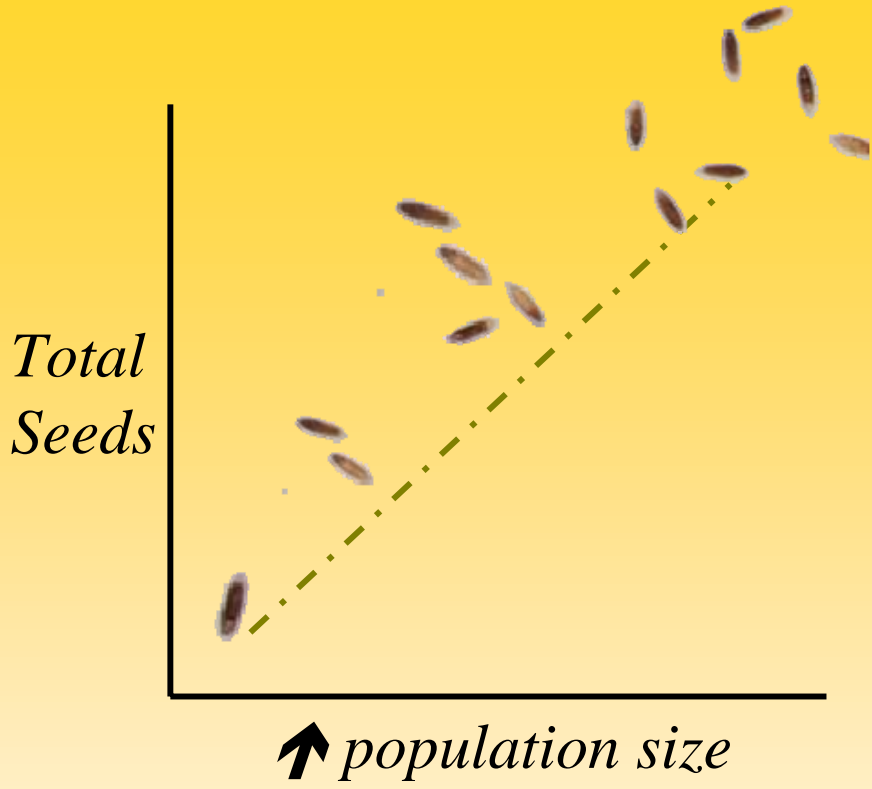
*% seed
set*



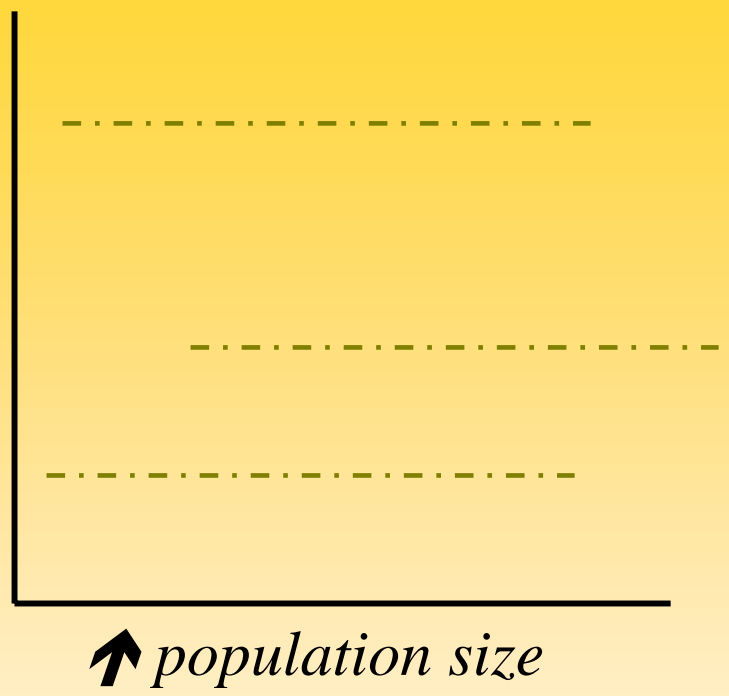
↑ population size

*above-ground biomass in
plot,*

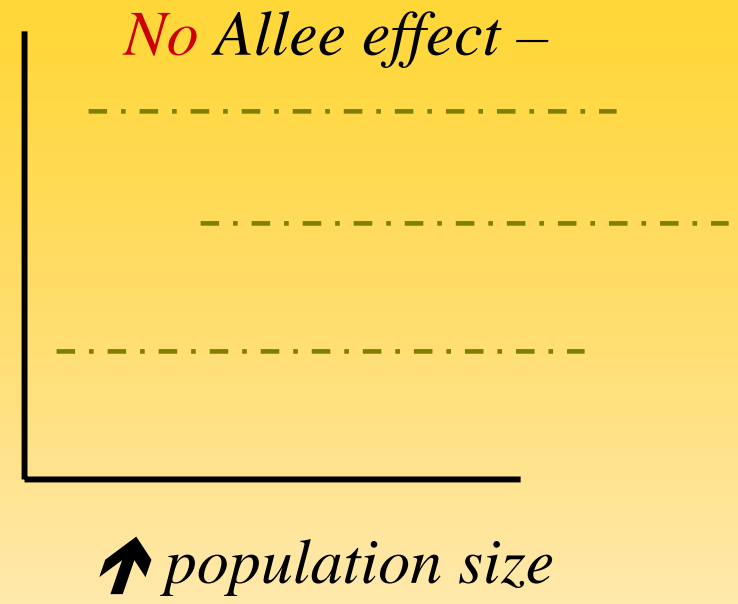
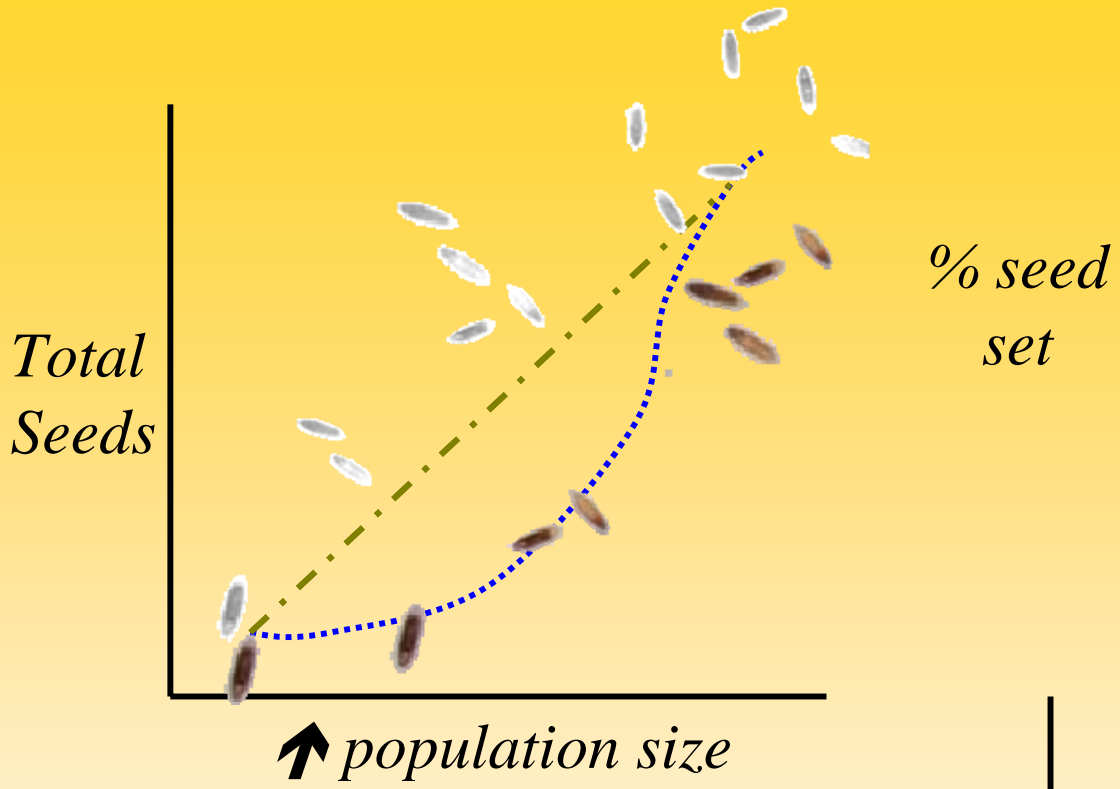
*as surrogate for amount of pollen
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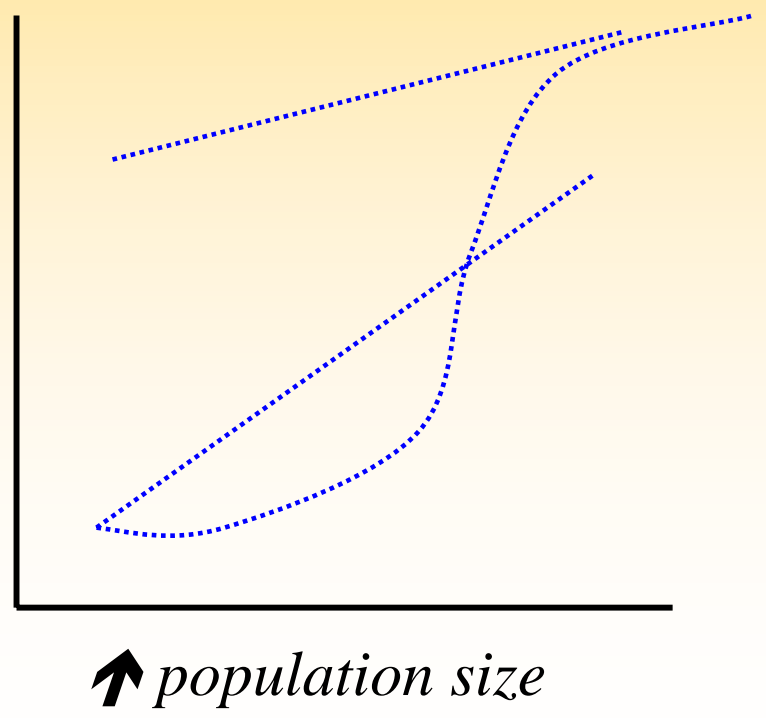
% seed set



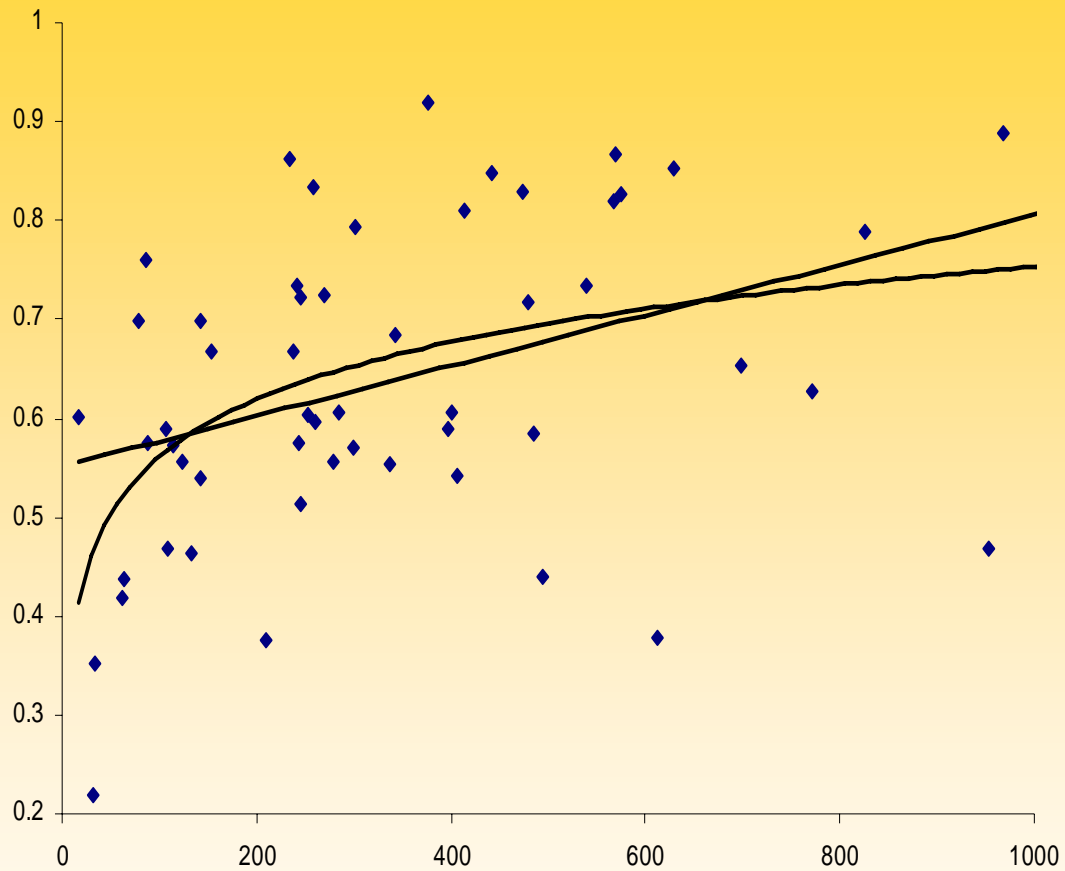
*No Allee effect –
population size has no effect
on **percent seed set** --
the contribution of each plant*



With Allee effect:



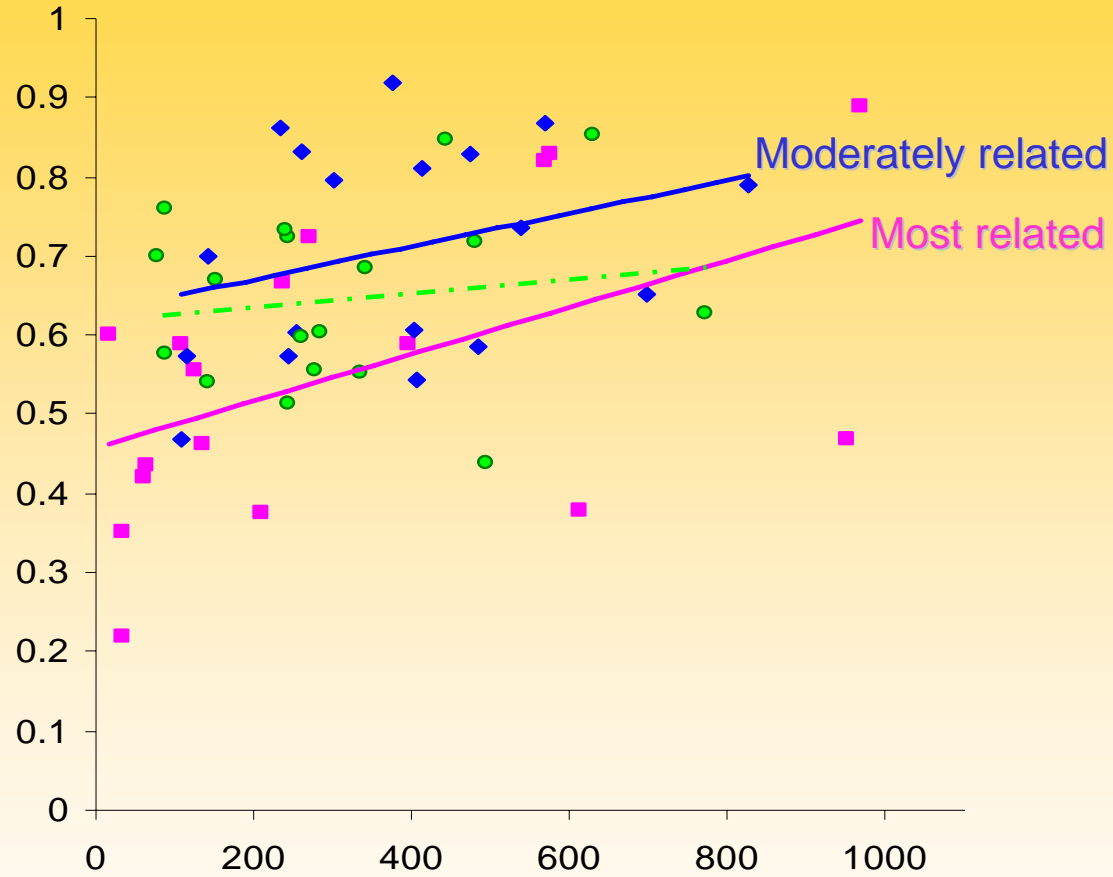
*% seed
set*



Biomass

*% seed
set*

Not related



Biomass









Acknowledgements

Weed Science students at UC Davis and Guy Kyser

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