

# Testing Methods of Broom Control (in the context of Forest Regeneration)



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# Constraints



# Advantages









56 ft

**control**

**Scarify**

**Different time  
points and  
frequencies**

**Herbicide**

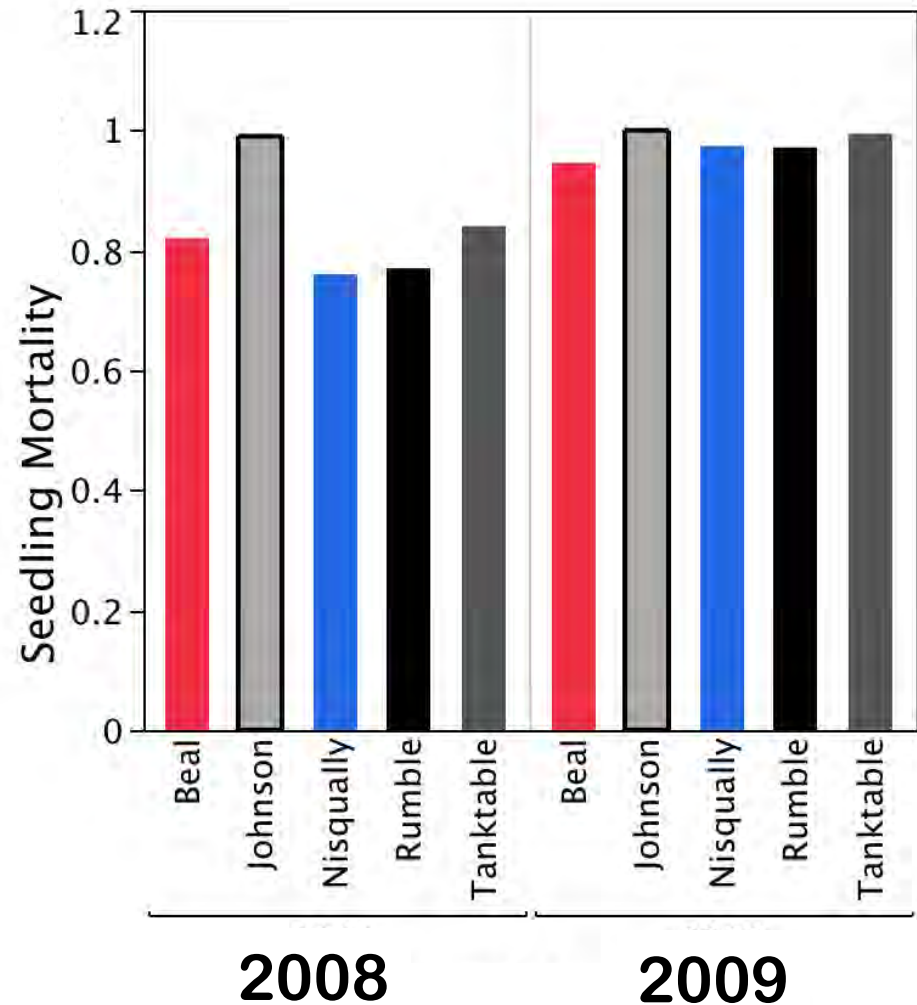
**Different time  
points**







# Massive Mortality



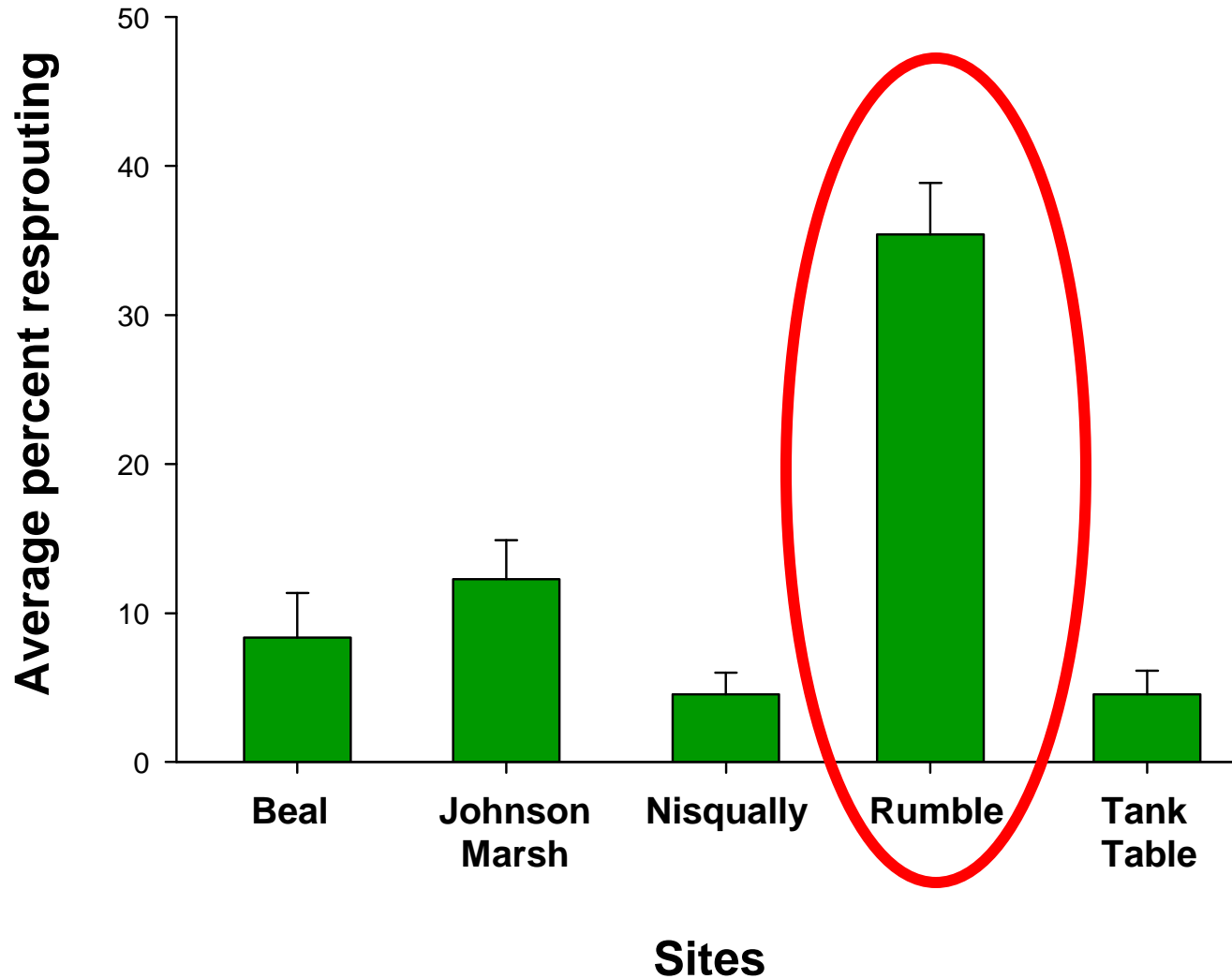
**Douglas fir seedlings were unable to establish in areas formerly dominated by Scotch broom.**

# Questions:

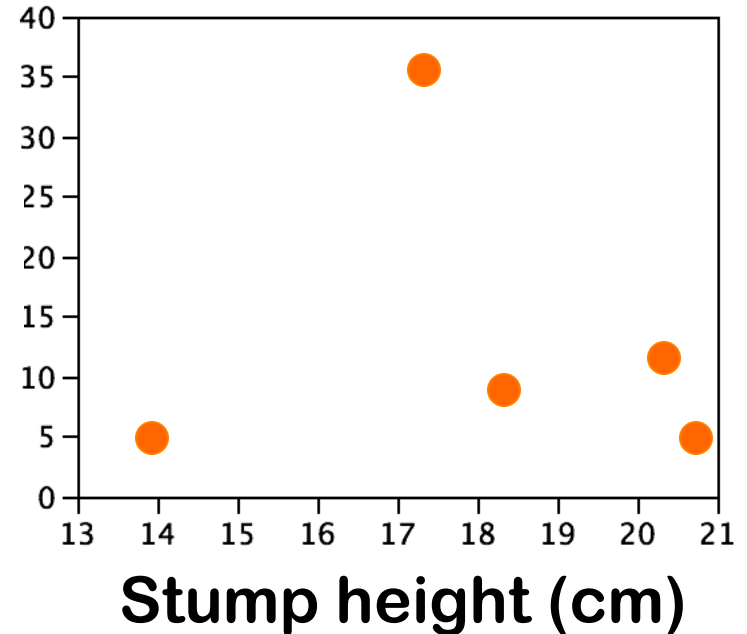
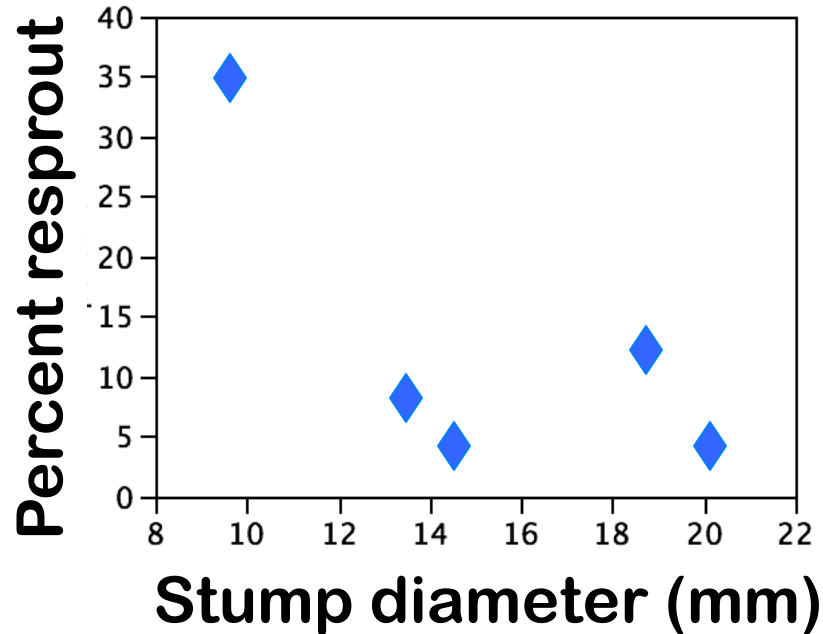
- **What are the rates of resprouting and do they vary with stump size?**
- **What does the seedbank look like?**
- **How do broom control treatments affect % cover?**
  - **mechanical v chemical?**
  - **2X mechanical better than 1?**
  - **best time of year for herbicide?**
- **Legacy effects of broom**



# Highly variable, but usually uncommon



# Does resprouting vary with size across sites?



**There is no relationship between size and resprout rate across these sites**

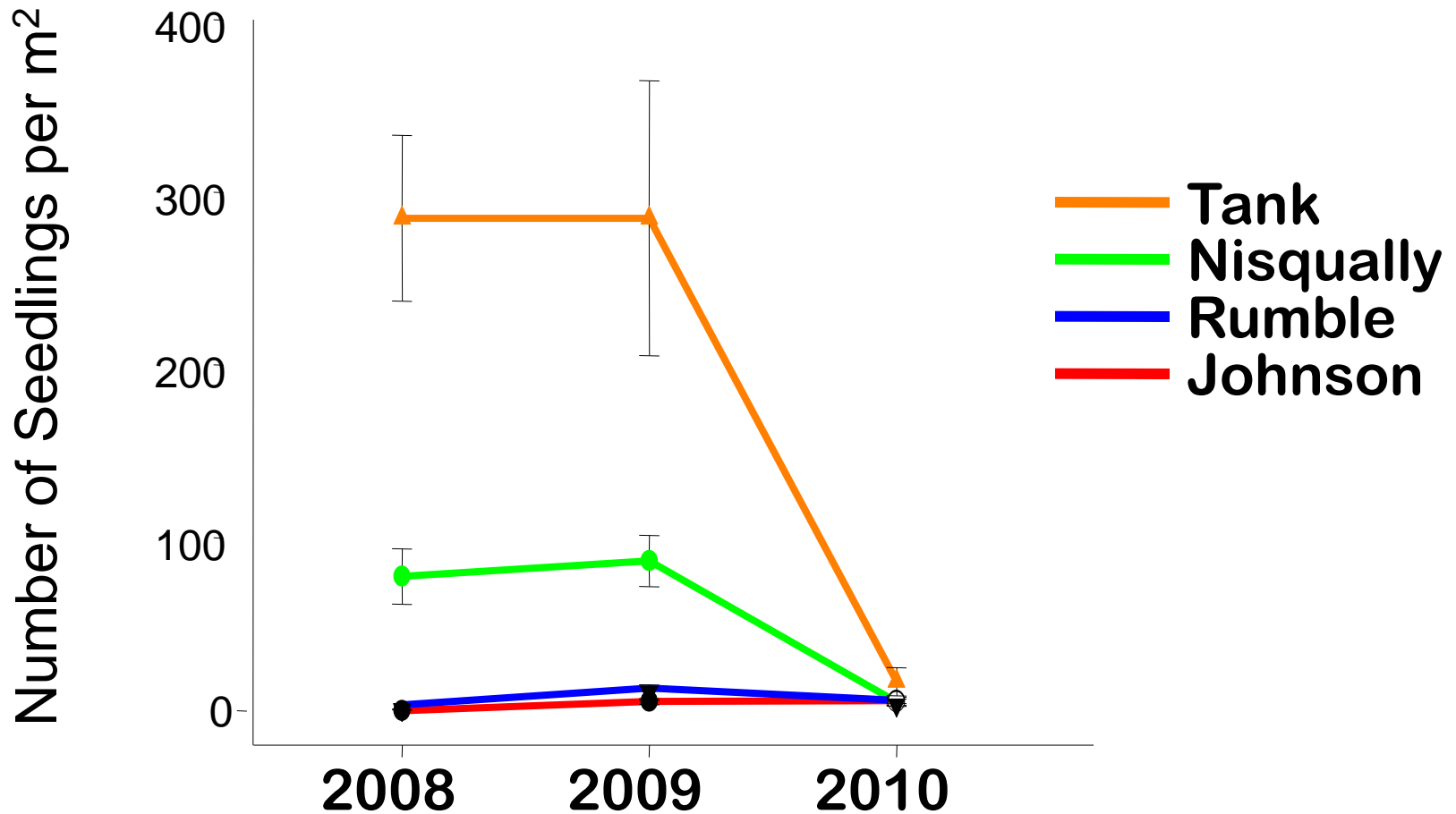


## **Broom seed bank dynamics**

**Q: Once you clear the broom (no new inputs), how does germination vary over time?**

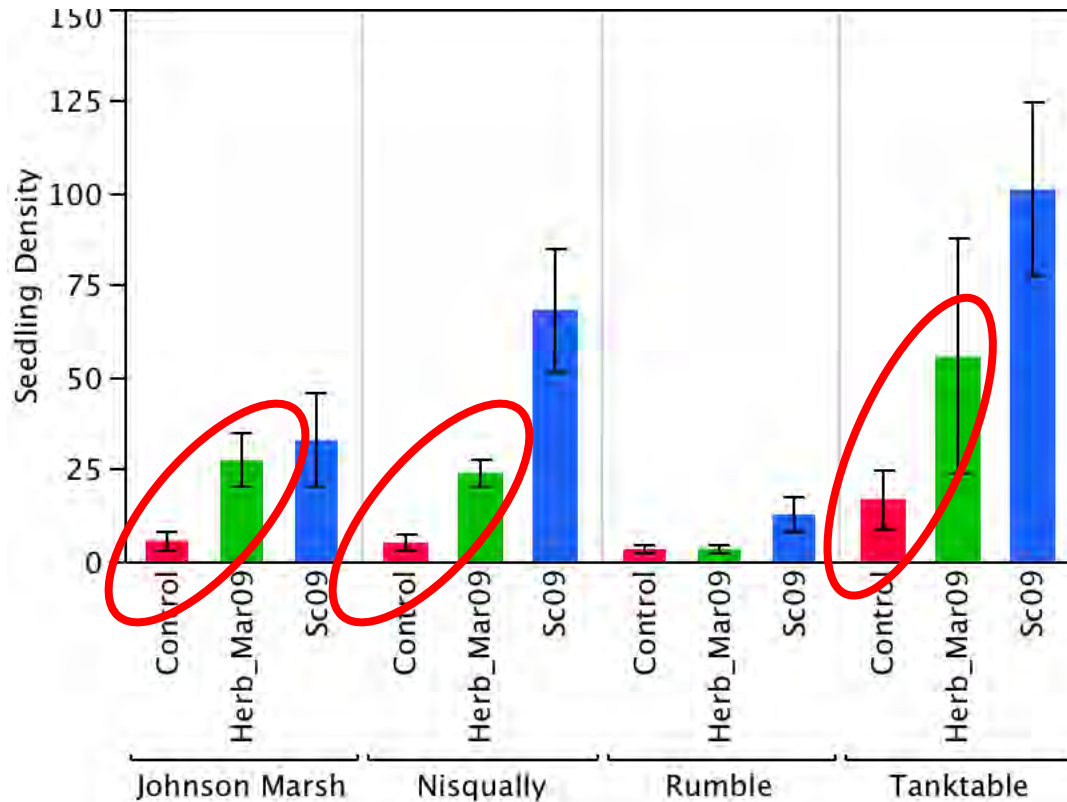
**Q: How do control treatments affect germination?**

# Background (control plots) germination



**Q: is this due to increasing overstory coverage or that the soil has remained undisturbed?**

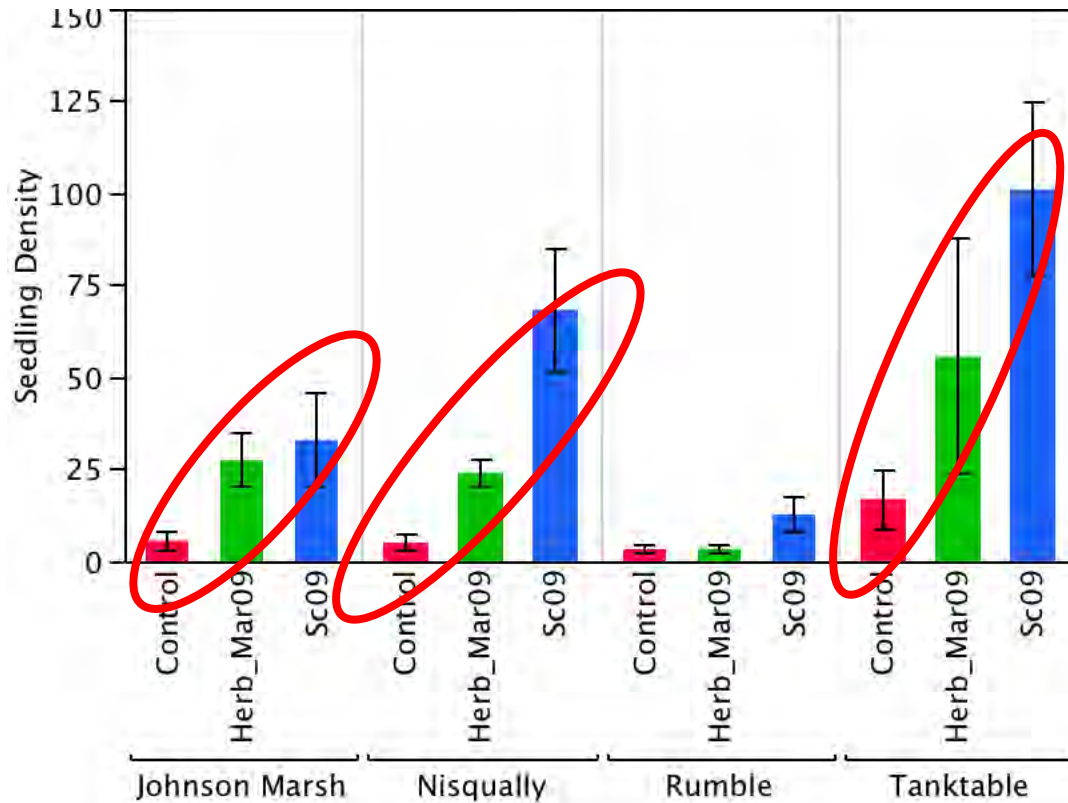
# Q: What conditions contribute to “flushing” the seedbank?



**Herbicide application leads to more seedlings in the following year.**



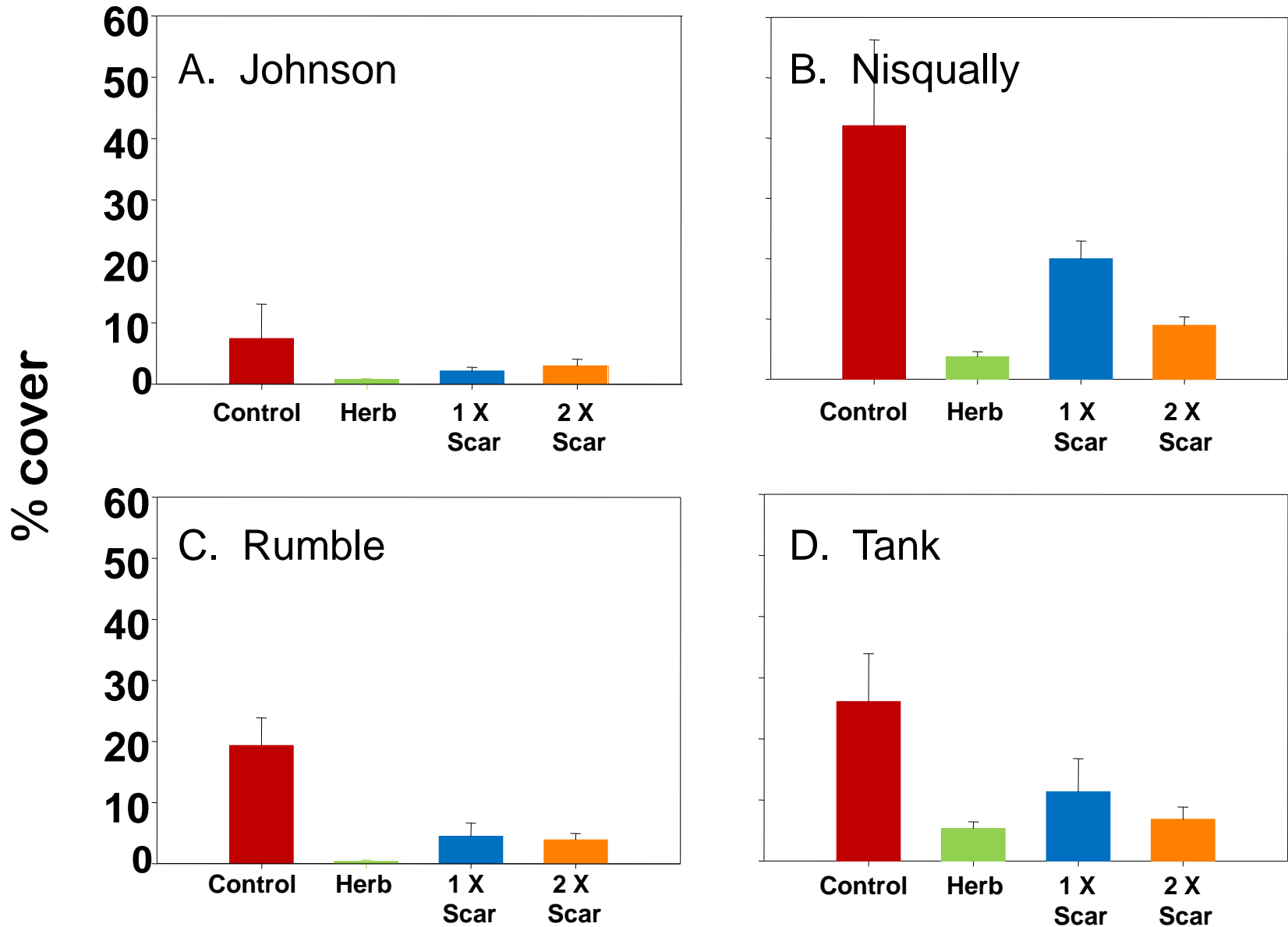
# Q: What conditions contribute to “flushing” the seedbank?



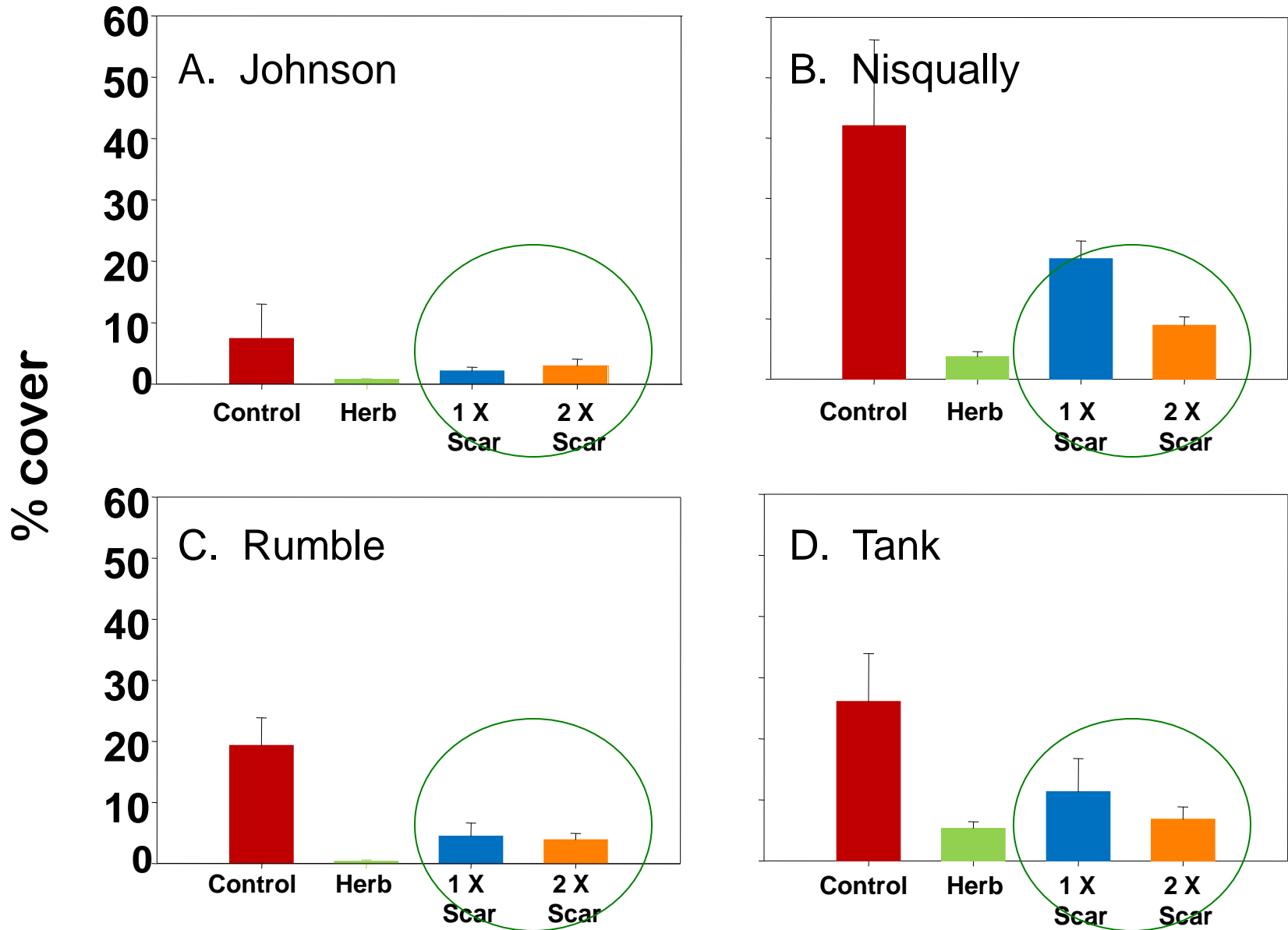
But scarifying the soil leads to even **more** seedlings germinating.



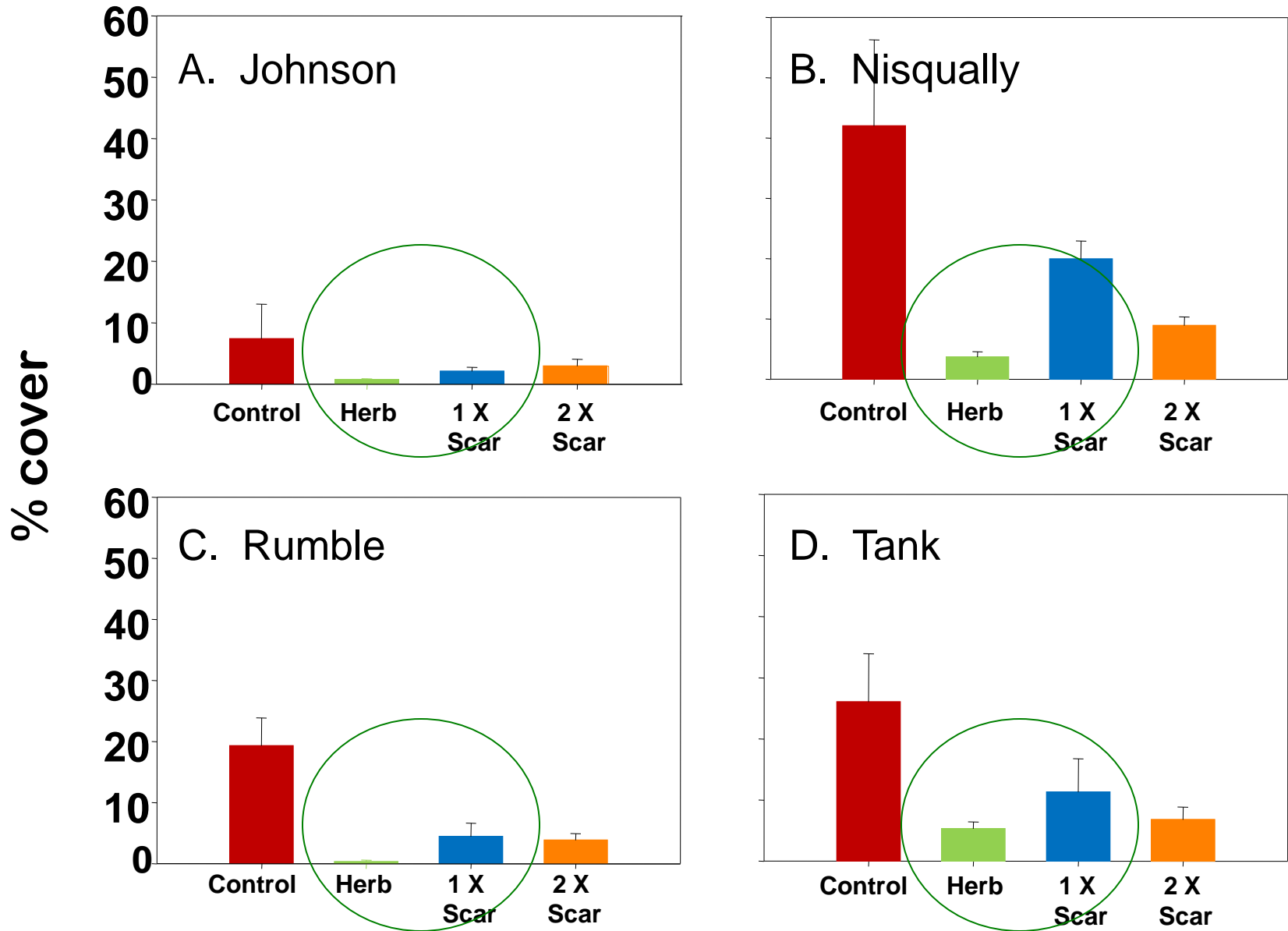
# Broom cover – response to treatments



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# Broom cover – response to treatments





# Herbicide Application

**Q: What is the most effective  
time of year?**

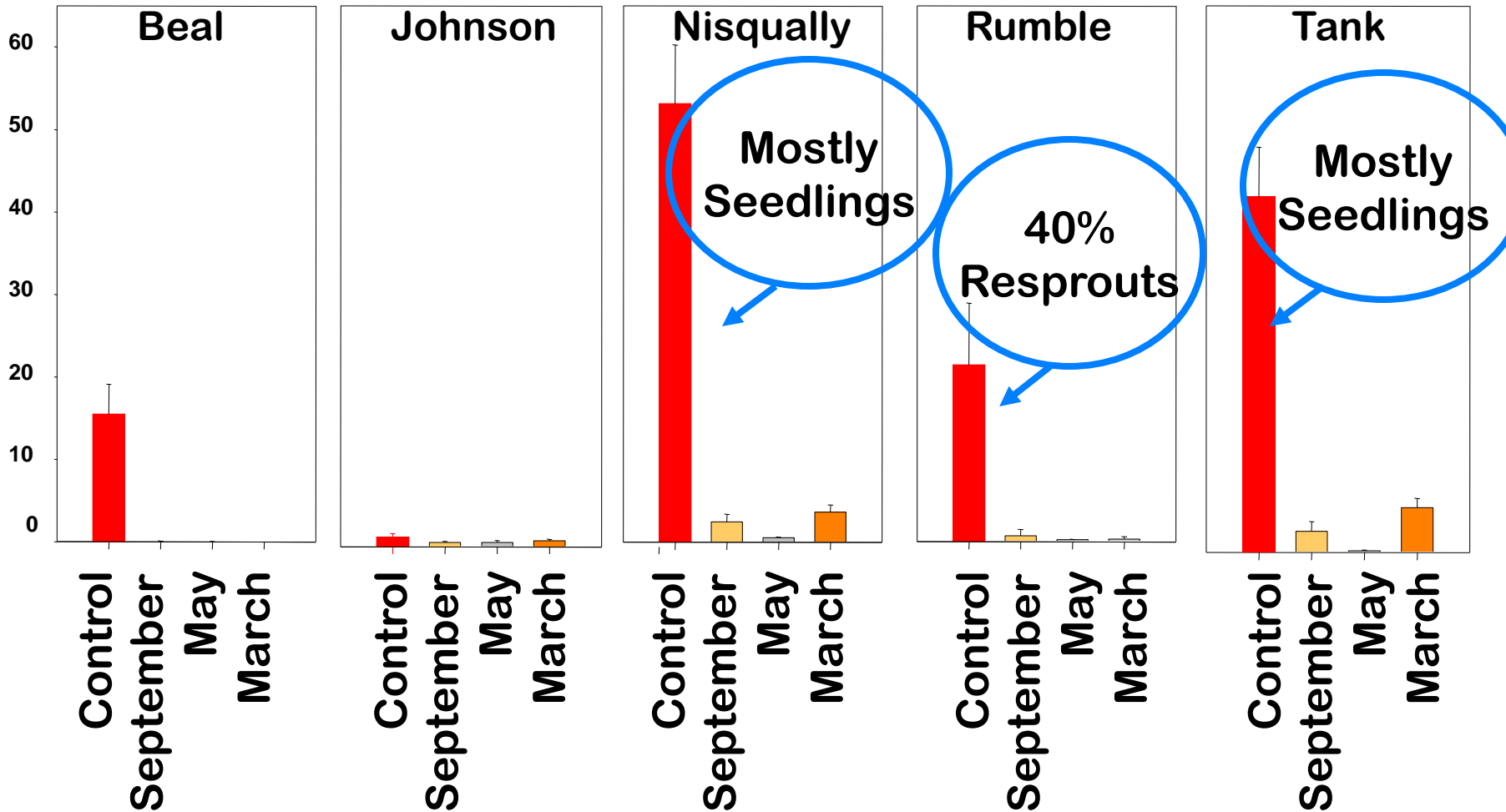
**Fall**

**Early summer**

**Spring**

**?**

# Best time of year to apply herbicide?



★ Spring, Summer, and Fall are all equally effective ★

**When you remove the broom,**



**Do you remove all the effects of the broom?**



# The Soil Legacy of Broom:

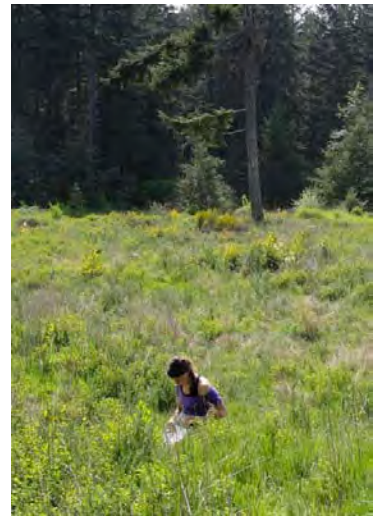
**+ Fertilization**

**- Allelopathy**

**- Changes in the microbial community**

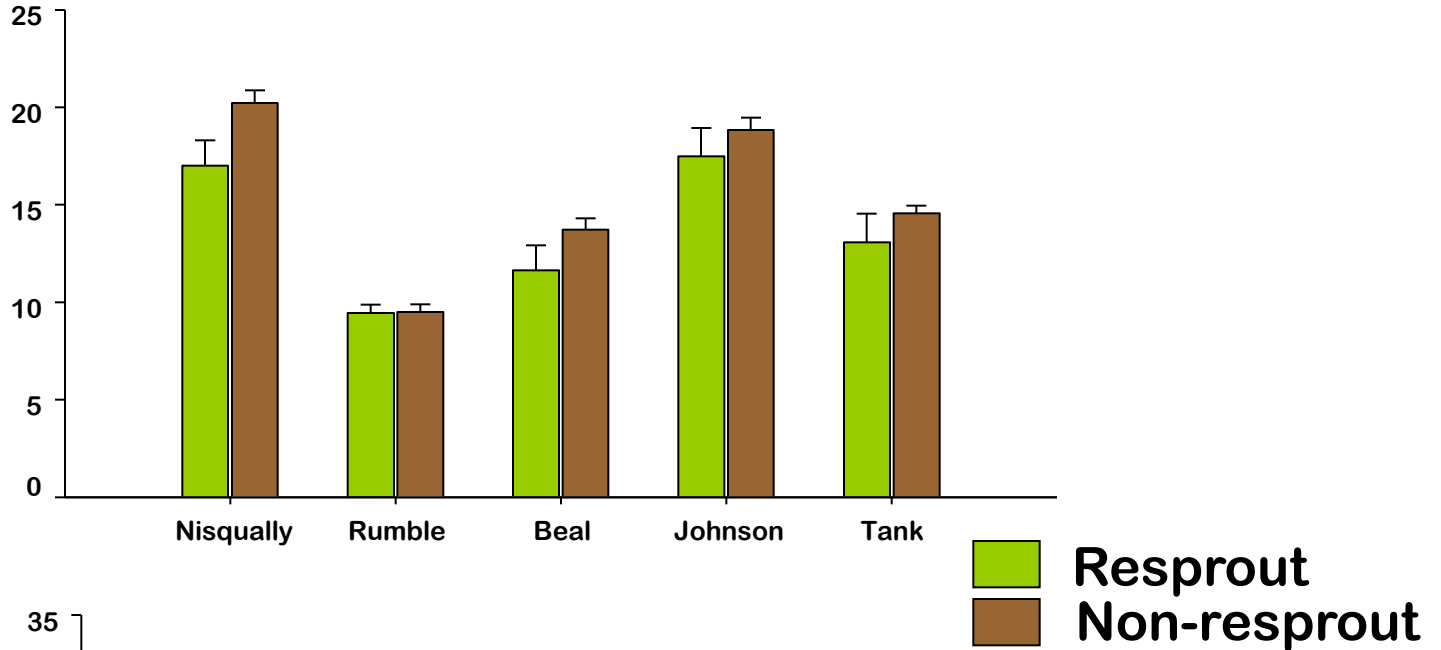


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# Do rates of resprouting vary with stump size?

**Stump Diameter:**



**Stump Height:**

