

# Effect of Steam and Flame Applications on Weeds in Peaches

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# Altarus Ranger Thermal Weed Control Device



- Uses propane as a fuel source.
- Weighs about 40 pounds.
- Provides about 45 minutes of use per 3 kg tank of propane when used at high flame setting.

# Sioux Weed Blaster Steamer Weed Control Device



- Uses diesel as a fuel source.
- Applies 2 gallons of water per minute which produces 320 degree F saturated steam at 250 psi.
- Holds 125 gallons of water.

# Experiment Methods



- Plot size was 4 feet by 15 feet (60 square feet).
- Four treatments applied 3 different times each
  - Steam
  - Flame
  - Mechanical weeding
  - Untreated
- Application dates
  - April 22, 2002
  - May 4, 2002
  - May 20, 2002
- Each treatment had 3 replicates
- Weed size at first application
  - Kochia was 2 to 4 inches tall.
  - Lambsquarters was 2 to 4 inches in size.
  - Annual rye was 3 to 6 inches in size.

# Application Timings



- The first flame, steam and mechanical weed control applications were applied on April 22, 2002. Each plot was treated for 60 seconds.
- The second flame, steam and mechanical weed control applications were applied on May 4, 2002. Steam, flame and mechanical plots were treated for 90 seconds.
- The third flame, steam and mechanical weed control applications were applied on May 20, 2002. Treatment time for all treatments were increased to to 120 seconds.



# Ten Days After the Second Steam Application



- The steam treatment gave little to no control (Less than 10%) of kochia, lambsquarters, annual rye and alfalfa.

# Ten Days After the Second Flame Application



- The flame treatments gave very good control of kochia, and lambsquarters, and fair to poor control of annual rye and alfalfa.

# Ten Days After the Second Mechanical Cultivation



- The mechanical cultivation treatments gave very good control of kochia, lambsquarters, annual rye and alfalfa.



# The Untreated Check on 5/14/02



- The untreated treatments showing high population of kochia, lambsquarters, annual rye, and alfalfa .

# Nine Days After The Third Weed Control Applications



Steamed



Flamed



Mechanical



Untreated

# Twenty-five Days After The Third Weed Control Applications



Steamed



Flamed



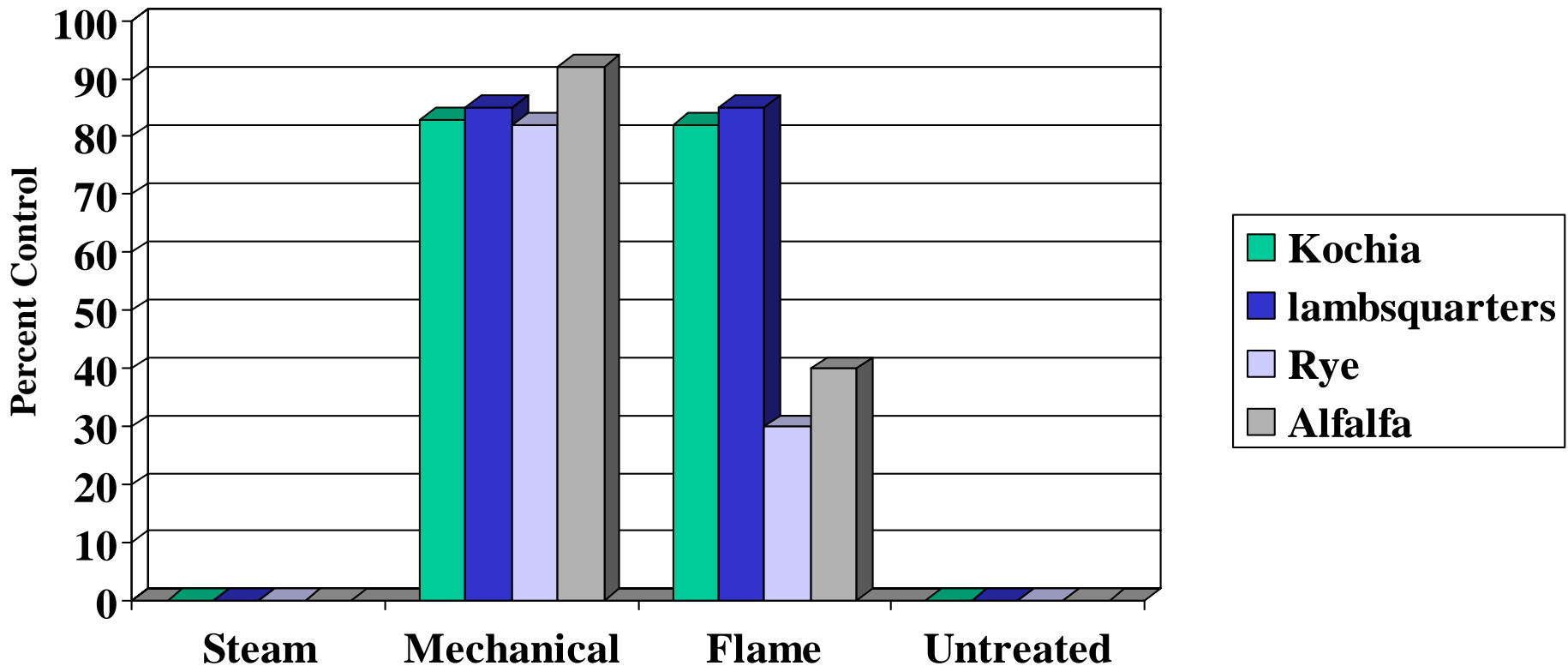
Mechanical



Untreated

# Effect of One Treatment Application on Weeds in a Peach Orchard

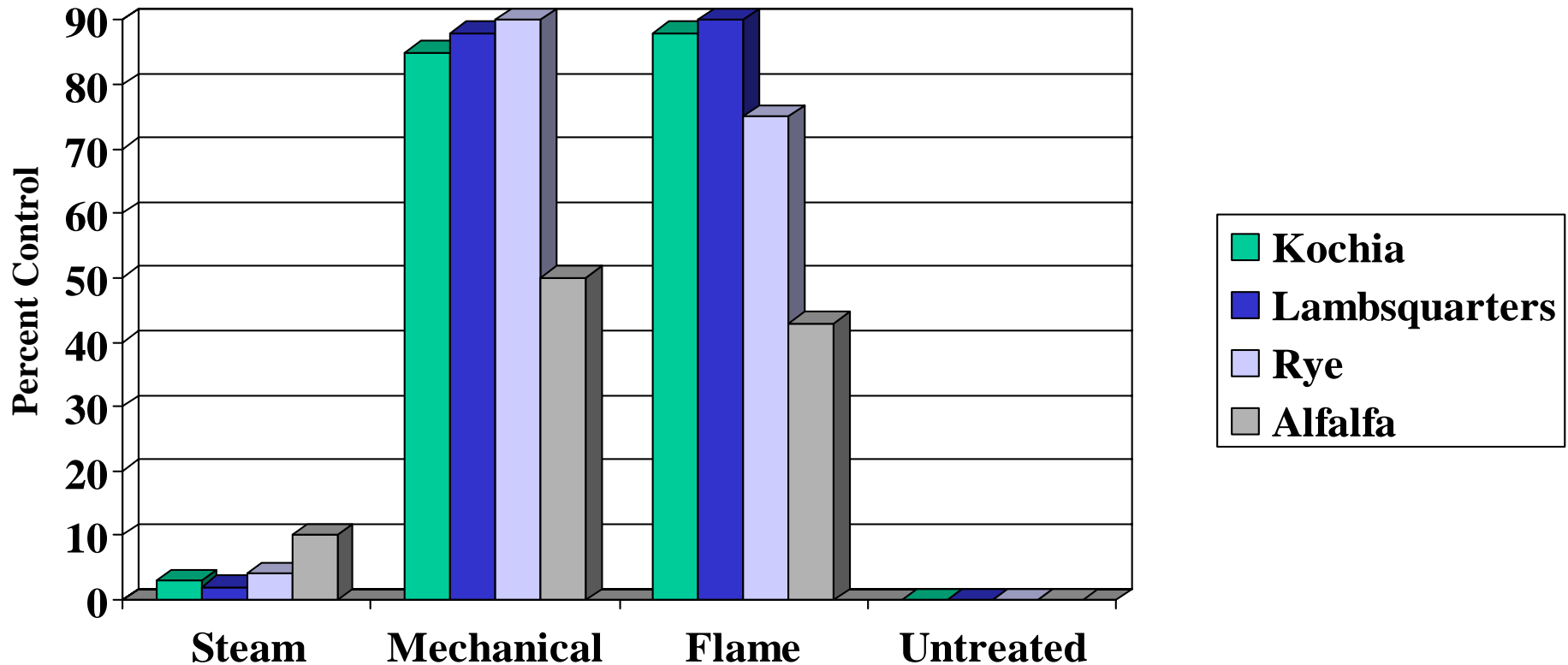
12 Days After the First Application





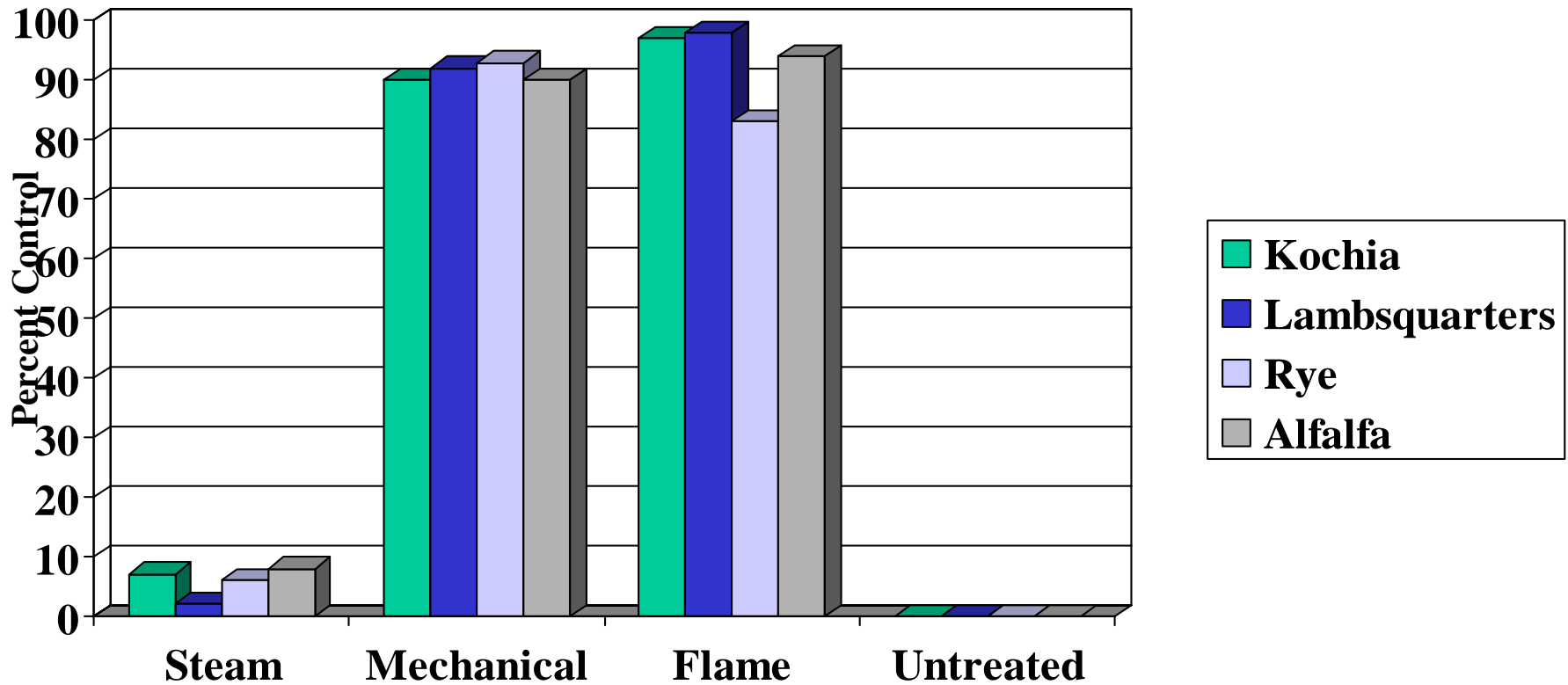
# Effect of One Treatment Application on Weeds in a Peach Orchard

10 Days After the Second Application



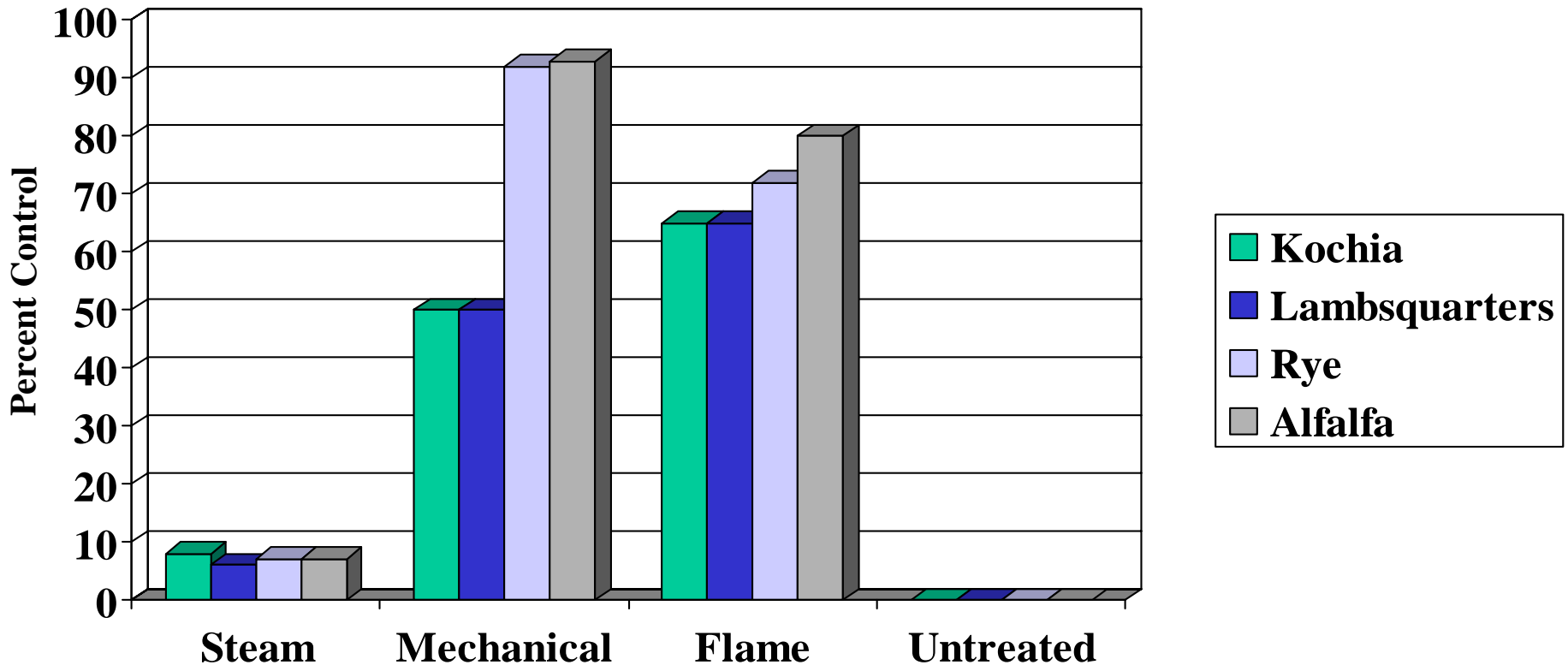
# Effect of One Treatment Application on Weeds in a Peach Orchard

9 Days After the Third Application



# Effect of One Treatment Application on Weeds in a Peach Orchard

25 Days After the Third Application



# Conclusion



• Steam treatments gave little to no control (less than 10%) of kochia, lambsquarters, annual rye and alfalfa following the application of steam on three different occasions. The final assessment 25 days after the third steam application, showed little control of any of the weeds tested in this study.



# Conclusion



- Mechanical weeding three times gave good to excellent control of kochia, lambsquarters, annual rye and alfalfa. Twenty-five days after the final weeding, kochia and lambsquarters control dropped to 50%. Annual rye and alfalfa control remained in the good to excellent control range with 92 and 93% respectively.

# Conclusion



- Flame treatments gave control levels similar to mechanical control, that is, good to excellent control of all weeds up to 9 days after the third application. At 25 days after the final flame application, weed control levels of alfalfa and annual rye dropped to 80 and 72% respectively. Kochia and lambsquarters control dropped to 65%.