



# Effect of Preharvest Herbicides on Sunflower



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- **Natural desiccation can be slow**
- **Poor weather can cause decline of yield and quality**
- **Bird predation may cause substantial losses**







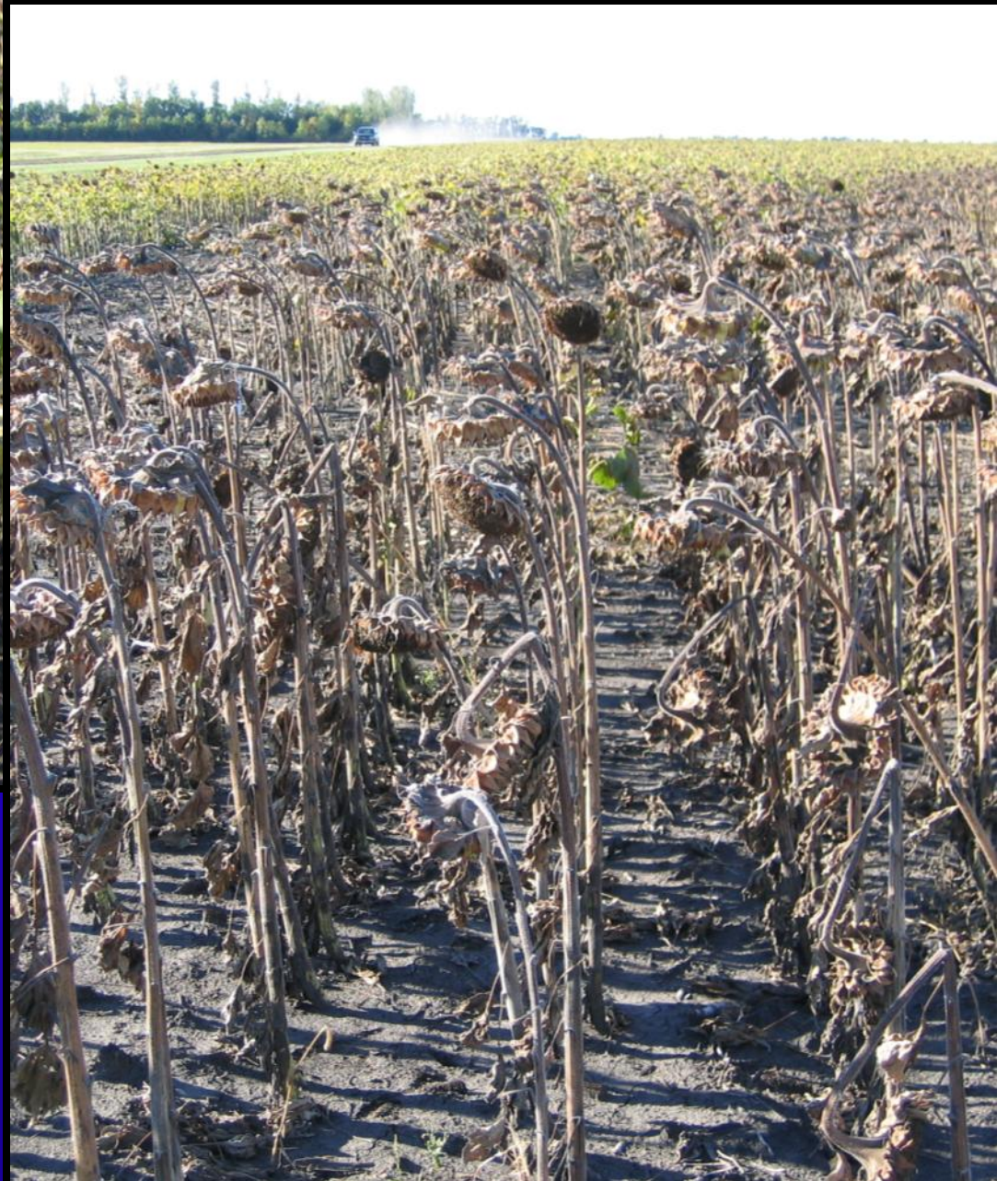
# Chemical Desiccation Options

- Sodium chlorate (Drexel Defol)
- Paraquat (Gramoxone Inteon)
- Glyphosate (RoundUp)
  - First use season in 2007
  - For weed control only
  - Will affect sunflower
  - Slow activity
- BAS 800H

# BAS 800H

- Phil Stahlman reported in 2007
- Proposed common name saflufenacil
- Low use rate (less than 1 oz ai/A)
- Favorable environmental profile
- Investigation of potential in sunflower
  - Desiccation of plants
  - Effect on seed





# Experiment Methods

- **Objective – determine the effect of application timing on seed quality**
- **Four locations**
  - Minot and Fargo, ND
  - Brookings, SD
  - Hays, KS
- **Locally adapted hybrid and production practices**



# Treatments

- **Control**
- **Factorial arrangement of application timing and herbicide**
- **Timing based on achene moisture**
  - 50, 40, and 30%
- **Herbicides**
  - Paraquat, 6 oz ai/A
  - Saflufenacil, 0.71 oz ai/A
  - Glyphosate, 12 oz ae/A
  - Saff plus glyt, 0.36+12 oz ai/A

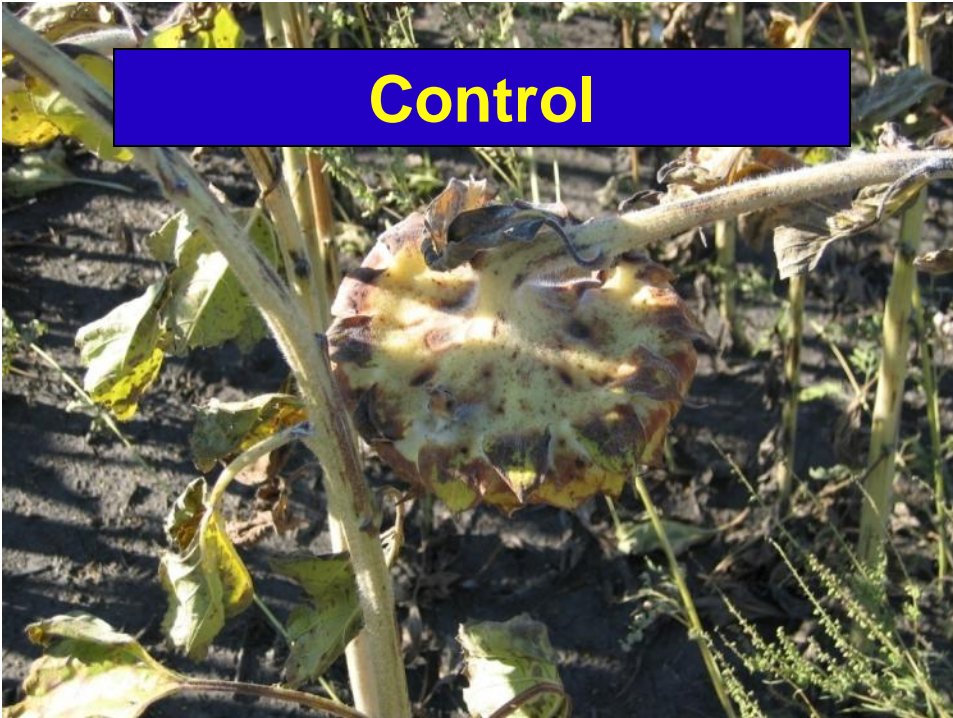


# Evaluations

- **Desiccation at four 7-day intervals**
  - Stalk, receptacle, and seed
  - Visual and moisture content
- **Seed yield and quality at 28 days**
  - Yield
  - Weight per 1000
  - Oil content and composition
  - Germination



**Control**



**Paraquat**



**Saflufenacil**



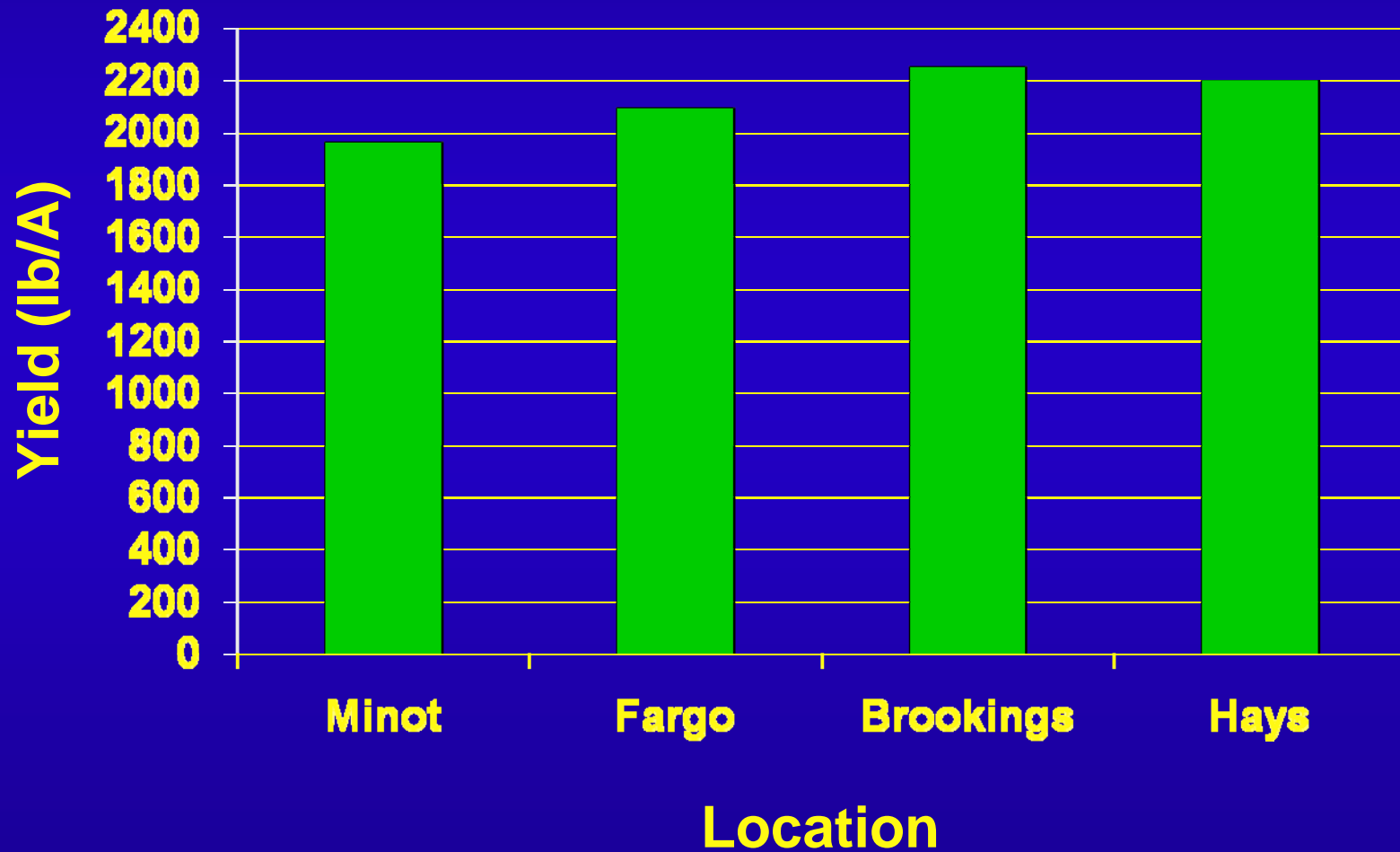
**Glyphosate**





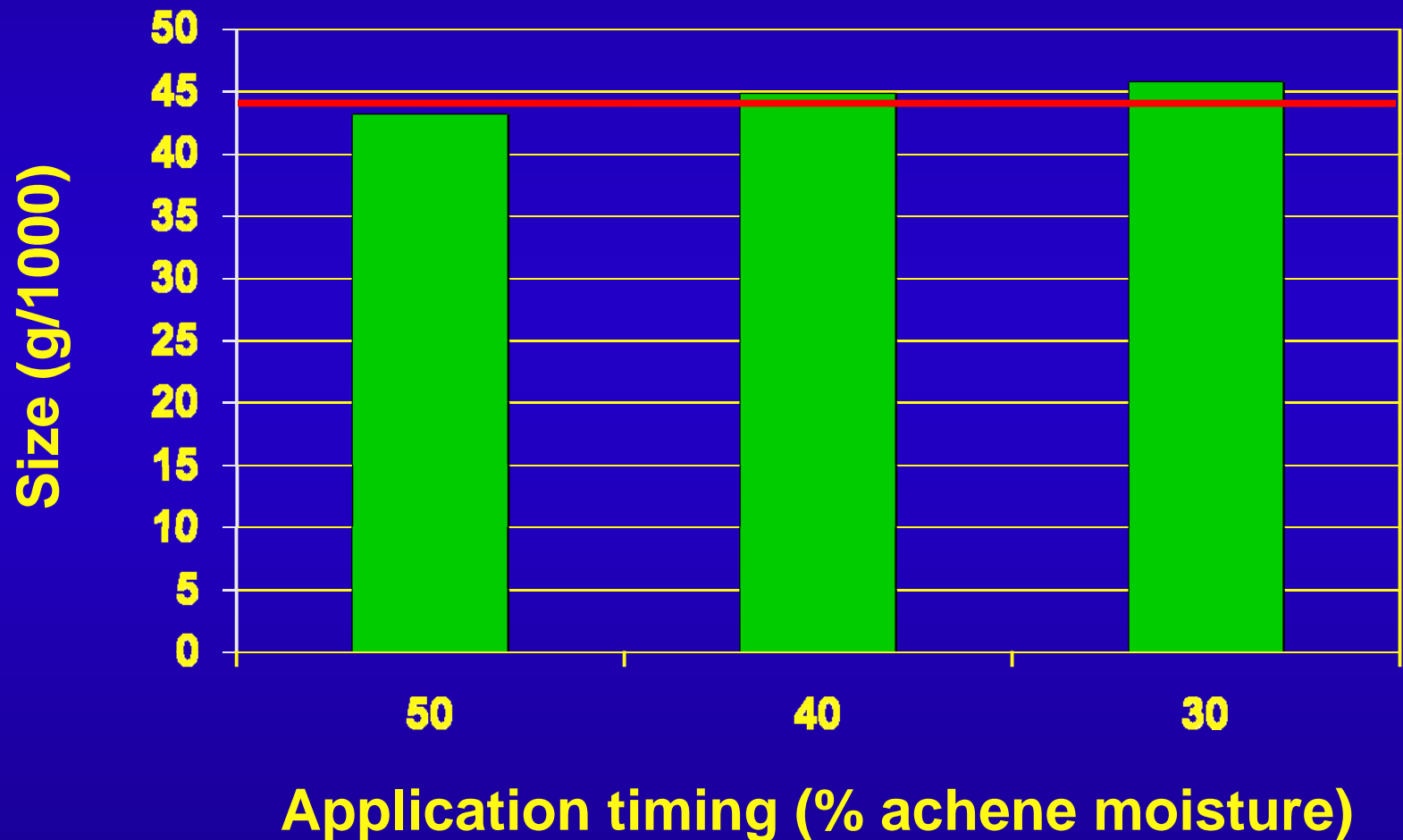


# Sunflower Yield by Location



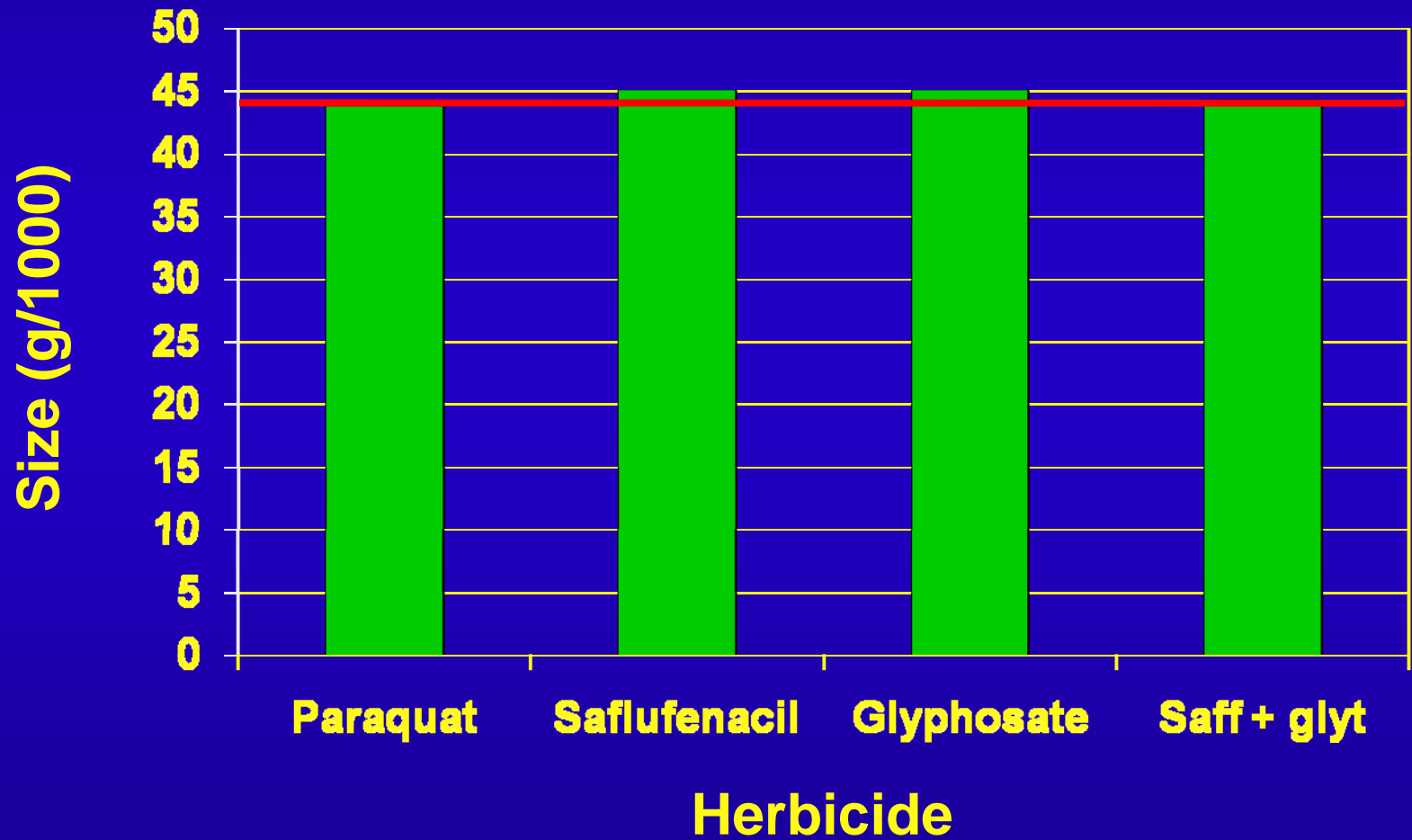


# Effect of Application Timing on Achene Size



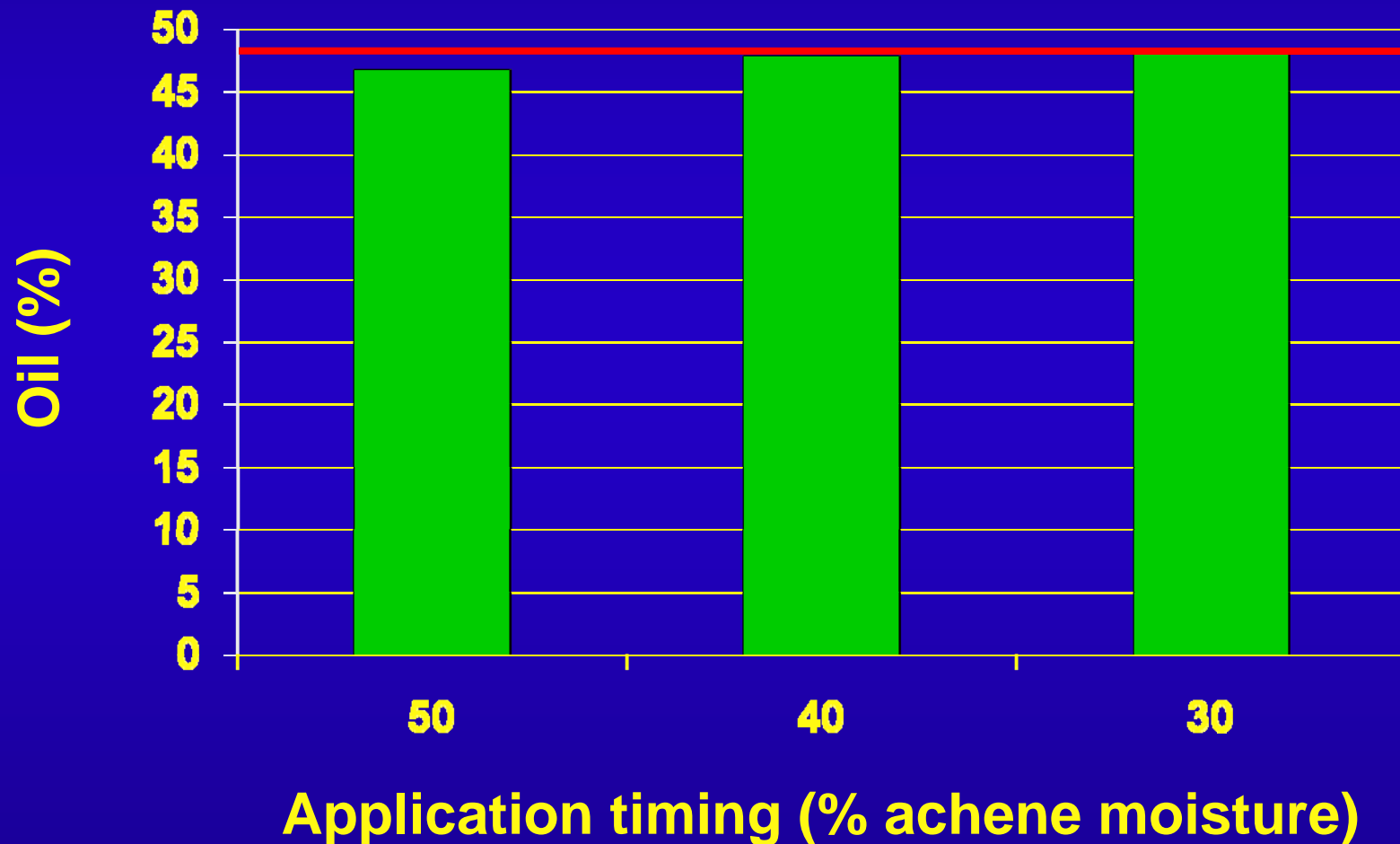
LSD 5% = 1.3

# Effect of Herbicide on Achene Size



LSD 5% = NS

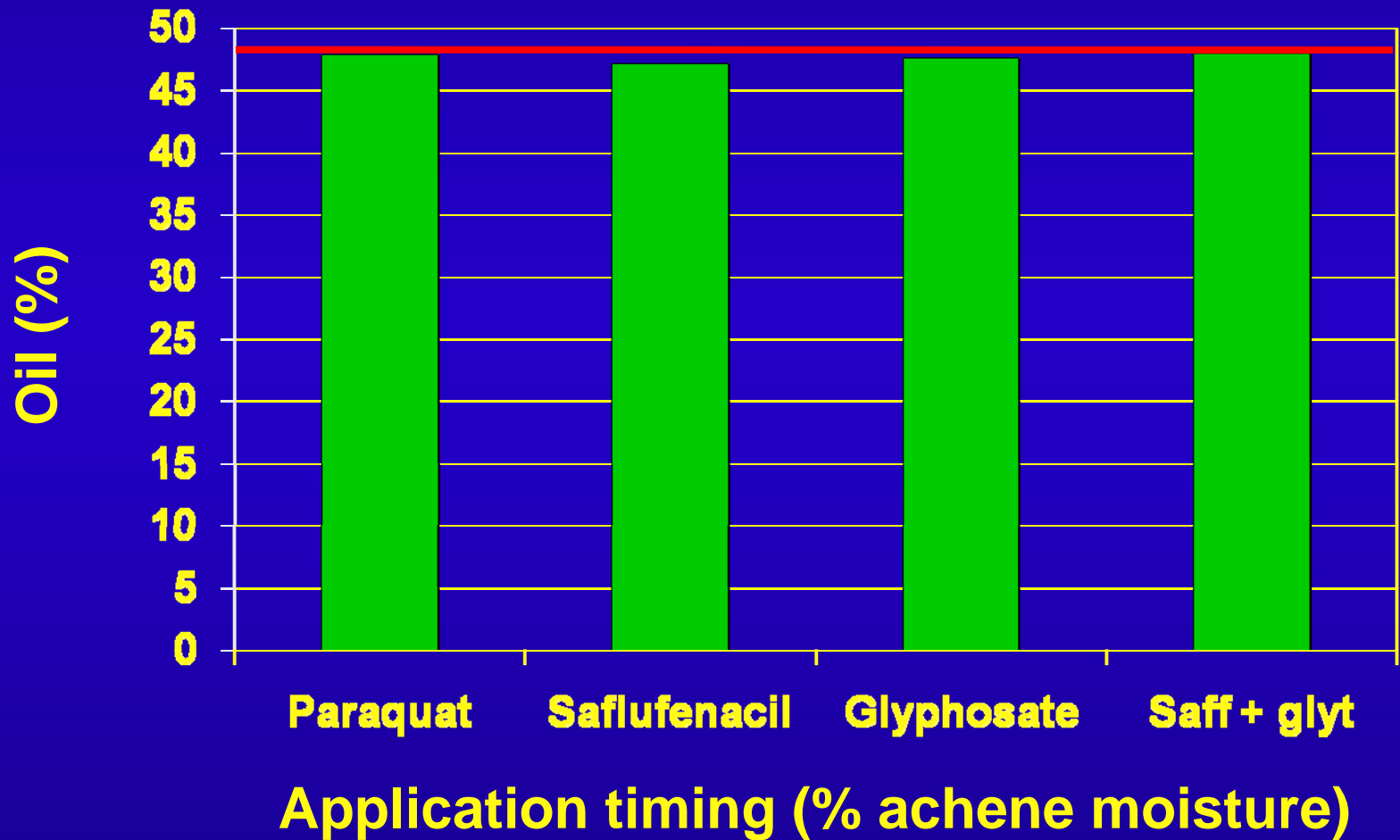
# Effect of Application Timing on Achene Oil Content



LSD 5% = 0.7



# Effect of Herbicide on Achene Oil Content



LSD 5% = NS

# Summary

- **Chemical desiccation as early as 50% achene moisture**
  - Can reduce field drying time
  - Did not reduce yield
- **Herbicide did not affect achene size or oil content**
- **Application at 50% moisture reduced size and oil content**



# Evaluations to Come

- Germination tests have been initiated
- Oil composition will be determined

The authors thank the NSA for support of this project.