Weed Management with Uncertain Weather

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Weed Control Basics 101

Technology

- Definition: *Tool used to solve problem*
- What is the problem??

Problem

- Consistentcy of results is tied to weather
  - Directly
    - Moisture: PRE activation, POST rainfast
    - Wind and drift/loss
    - Absorption and Translocation
    - Emergence or growth/size
  - Indirectly
    - Window of optimal conditions may cause conflicts with capacity

Talk Outline

- Describe problem
  - Weather driven performance
- Describe solution
  - Classical: Experience, intuition, forecasts, flexibility required
  - New: “IPM Watch”
    - Currently under development
    - Software technology
    - Flexible calculation of “window”
    - Calculation of application time remaining

Problem

- Variable control/performance
  - Examples: Trower and Boerboom later in this session
  - Importance of timing or technique
- Planning requires (ideally)
  - Defining the window
  - Knowing penalty for use outside of window
  - Estimating how long the window is open
  - Estimating capacity of operation

Classical Solution

- Understand weather-related requirements (READ LABEL)
  - PRE and moisture
    - Many need ¼ to ½ inch precip to be most effective
    - Example: Dual II Magnum (metolachlor) can be used PP, PPI, PRE, POST
  - Stress and POST applications
    - Moisture and/or cold stress can reduce efficacy

Classical Continued

- READ LABEL – continued
  - POST (example, corn)
    - Accent (nicosulfuron), typical: 2/3 ounce
    - Control of many grass & broadleaf weeds
      - Needs weeds < 4 inch (depends on weed)
      - Desirable: corn < 20 inch or < V6
      - Best if warm (>70 F) and moist
      - Rainfast in 4 hr
      - Wind, drift concerns: best if 3-10 mph

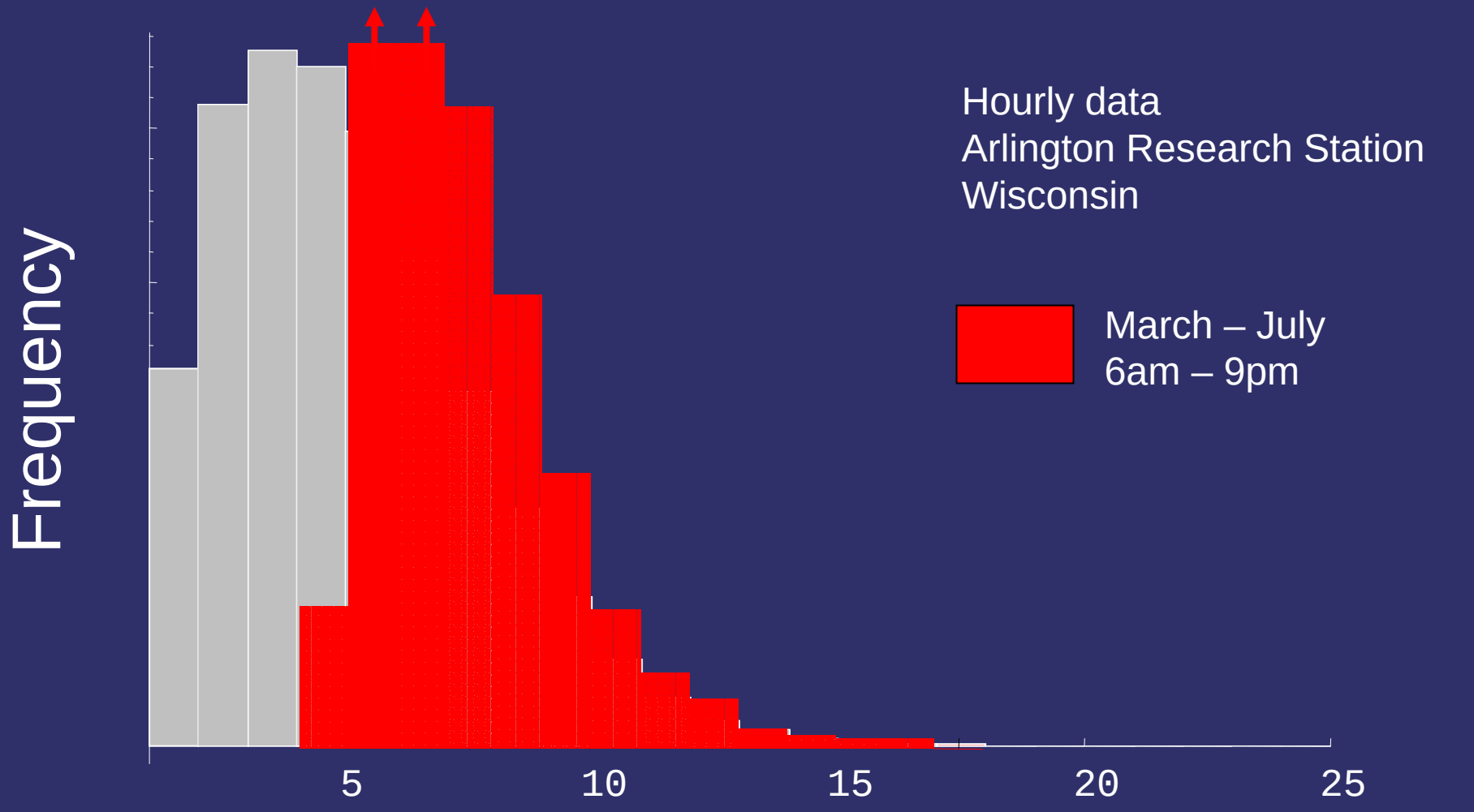
Classical Method

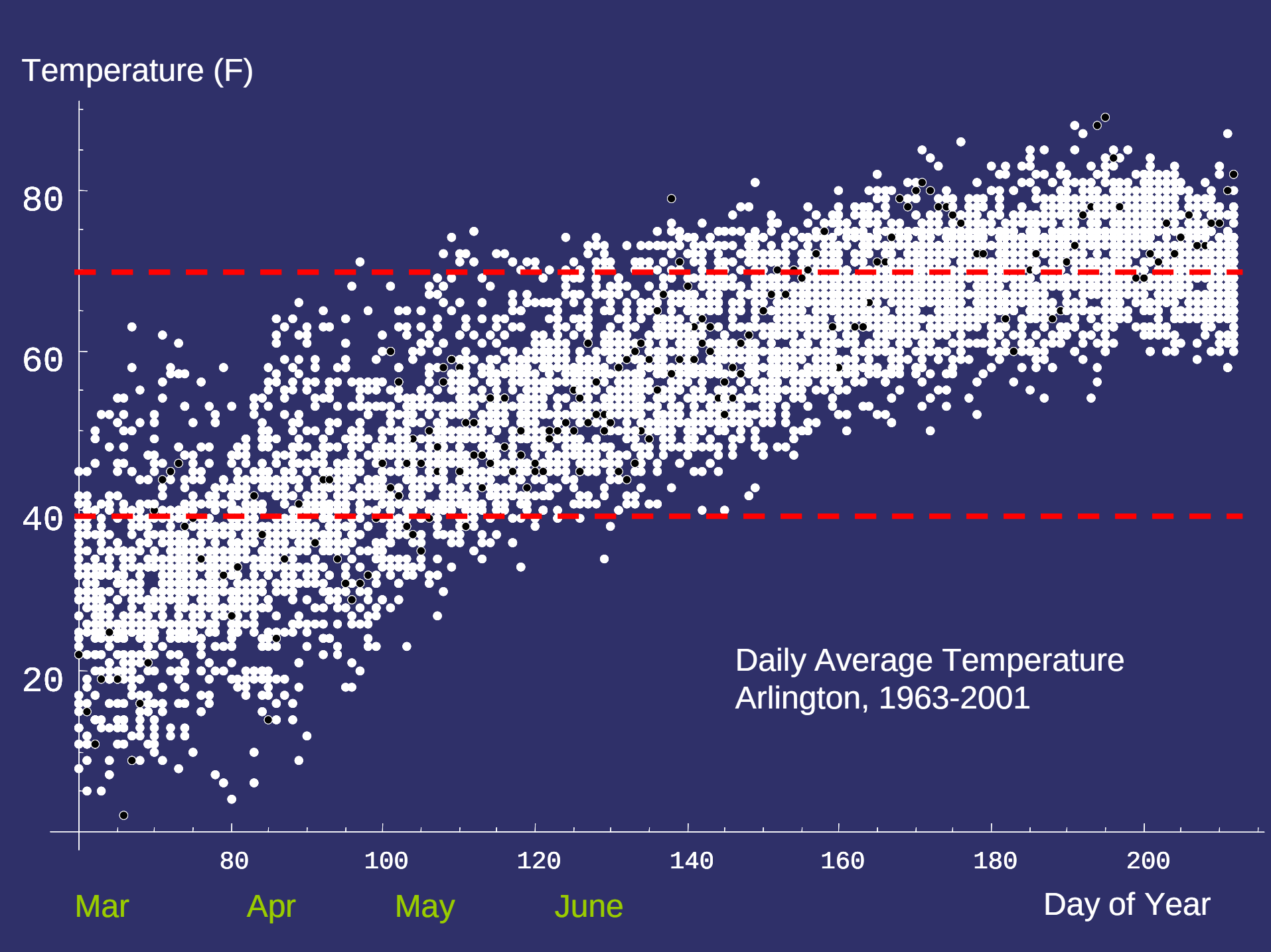
- Know the weather – Clearly farmers are very experienced when it comes to gambling on weather
- Use of forecast information
- With sufficient flexibility, adjustments in job priorities are made “on the go”

What happens without flexibility?

- Large farms, busy farmers
- Custom applicators with expensive equipment

Wind Speed, 1988-2003



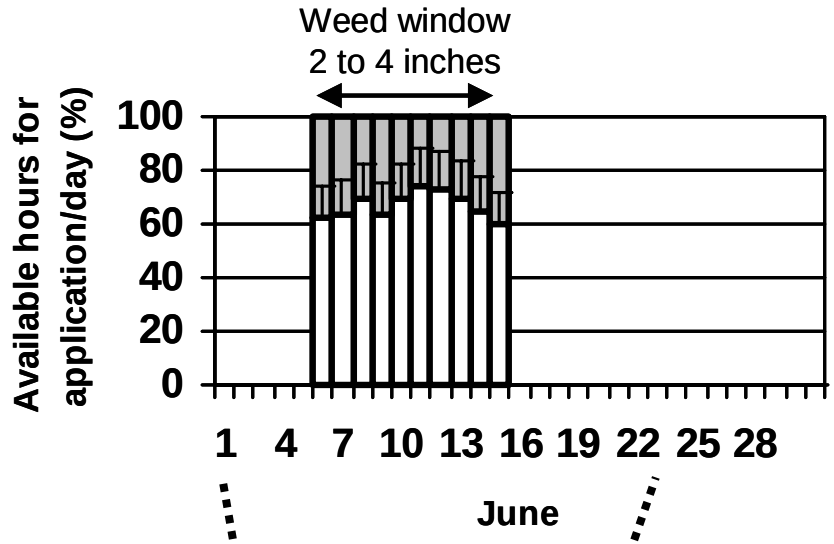

Temperature (F)
80
60
40
20
80
100
120
140
160
180
200
Mar
Apr
May
June
Day of Year
Daily Average Temperature
Arlington, 1963-2001

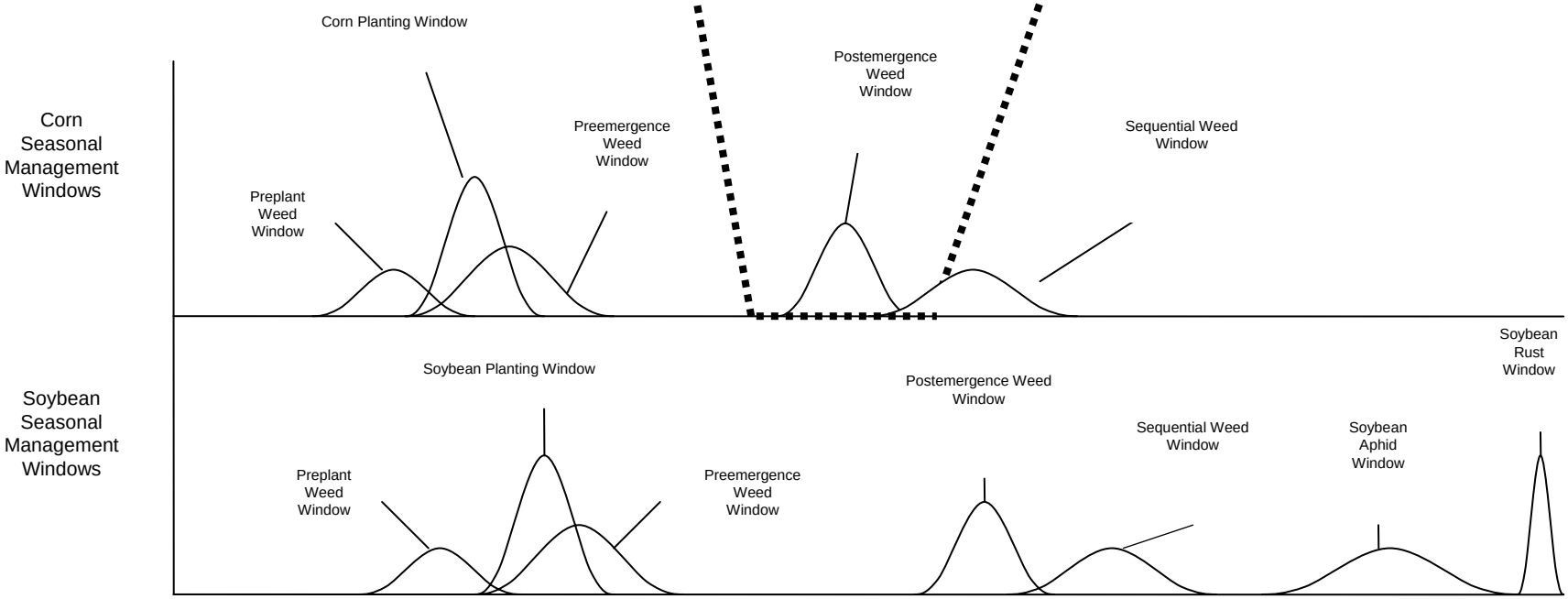
New Solution

- Project under development “IPM Watch”
- Use historical weather data and forecasts to estimate amount of optimal application time remaining
- Can make accurate estimates of capacity
- Can plan when flexibility is reduced

IPM Watch

Plan Your Time
Protect Your Crop





Summary

- Weather can influence weed control effectiveness in many ways
- As farmer or work flexibility is reduced, planning accuracy will become more important
- Technology like “IPM Watch” could play an important role
- Think about when Trower and Boerboom present later this session