

# WONDERFUL WYOMING





A close-up photograph of several branches of a blue spruce tree. The branches are covered in dense, fine, blue-green needles. The background is dark and out of focus. At the bottom of the image, the text "WHY DO WE PLANT TREES..." is written in a bold, black, sans-serif font with a white outline.

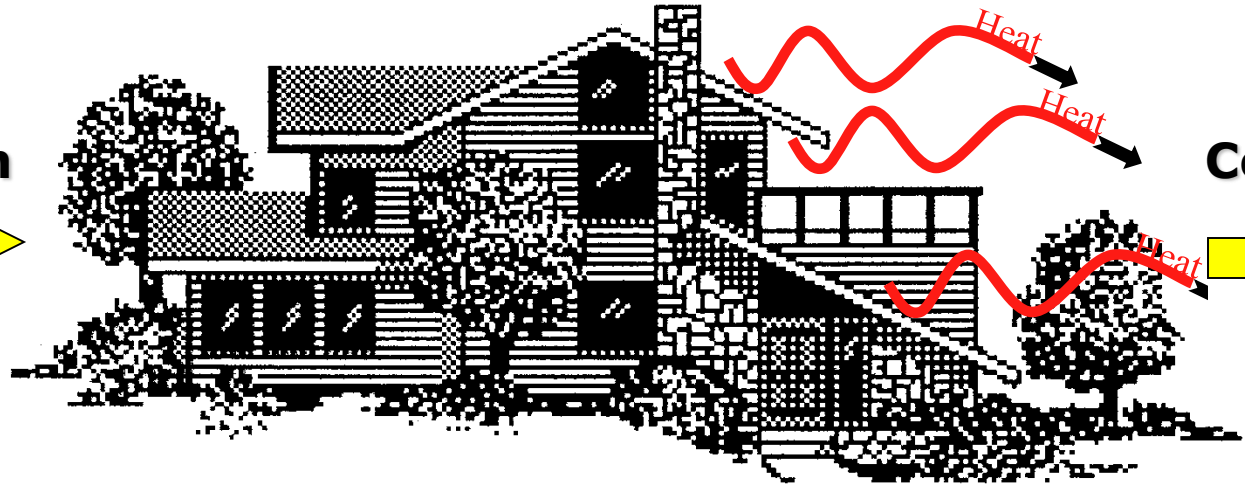
**WHY DO WE PLANT TREES...**

# ENERGY SAVINGS

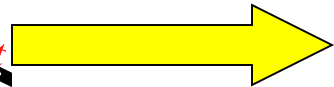
Wind direction



Infiltration



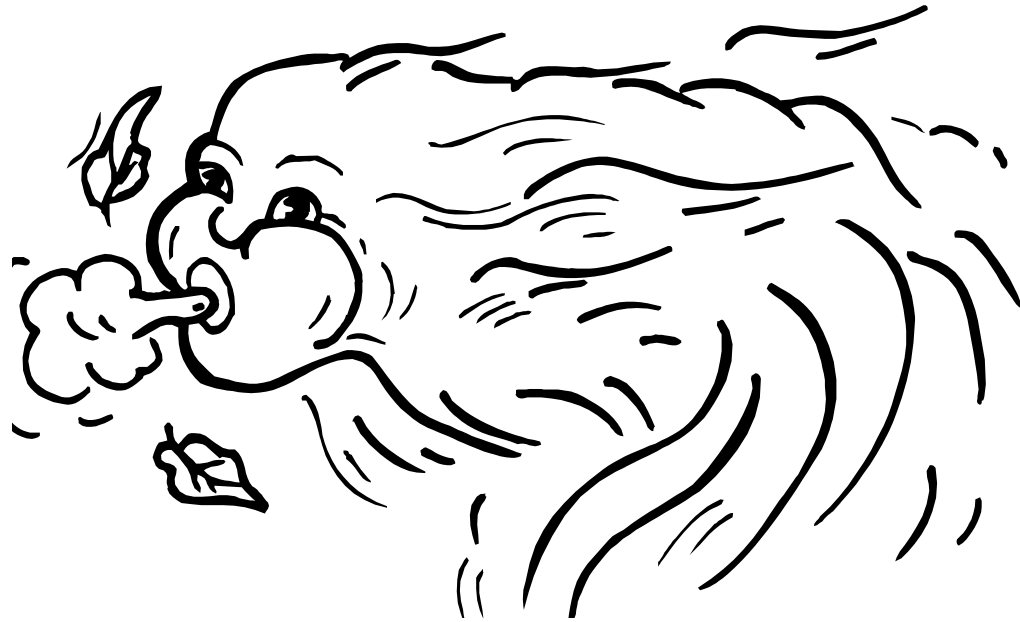
Conduction



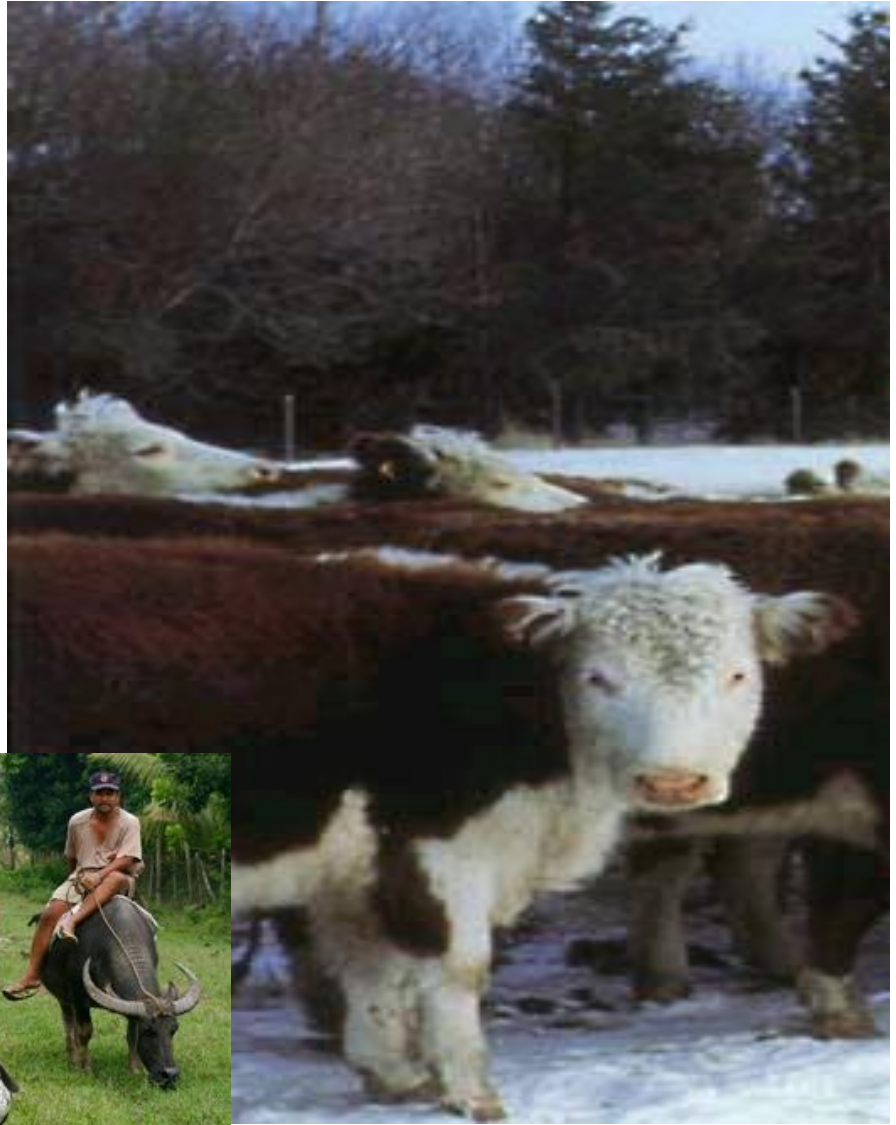
# Snow Control



# Wind Protection



LIVESTOCK PROTECTION

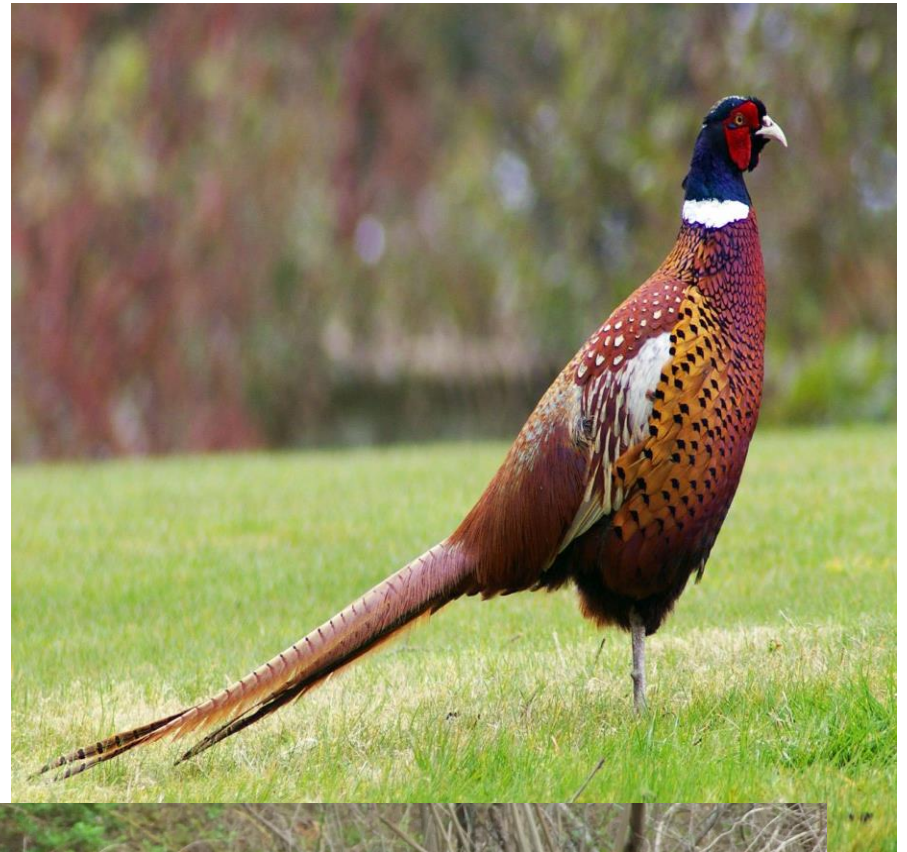


# CROP PROTECTION





# WILDLIFE HABITAT



# BEAUTIFICATION





# RECREATION



# Pollinator Habitat





# WINDBREAKS FOR SNOW AND WIND CONTROL



# DESIGNING A WINDBREAK



YOU CAN CAREFULLY CALCULATE THE AMOUNT OF WIND PROTECTION AND SNOW STORAGE FOR EACH SITE

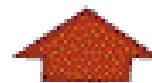
$$\begin{aligned}
 & \rightarrow x^2 + px + q = 0 \\
 & \rightarrow x_{1/2} = -\frac{p}{2} \pm \sqrt{\left(\frac{p}{2}\right)^2 - q} \\
 & f_r = \frac{1}{2\pi} \cdot \frac{1}{\sqrt{LC}}; \quad \omega = 2\pi f_r \\
 & W = \int_{s_1}^{s_2} F(s) \cdot \cos \alpha \, ds \\
 & \tanh x = \frac{e^x - e^{-x}}{e^x + e^{-x}} \\
 & u_c = U(1 - e^{-t/RC}) \\
 & v = \frac{ds}{dt} \\
 & \theta = I \cdot N \\
 & C + O_2 \rightarrow CO_2 \\
 & 4FeS_2 + 11O_2 \rightarrow 2Fe_2O_3 + 8SO_4 \\
 & -\frac{d}{dt} \int_A \vec{B} \, dA = \oint_L \vec{E}' \, dl = - \int_A \left( \frac{\partial \vec{B}}{\partial t} + \text{rot}(\vec{B} \times \vec{v}) \right) \, dA \quad ? x \neq y; z = x \\
 & HCl + H_2O \rightleftharpoons Cl^- + H_3O^+ \quad a^2 = b^2 + c^2 \rightarrow W_{\text{rot}} = \frac{1}{2} \cdot J \omega^2 \\
 & V = \frac{1}{6} \pi h (3e_1^2 + 3e_2^2 + h^2) \quad ?_V = \int_{\varphi=0}^{2\pi} \int_{\vartheta=0}^{\pi} \frac{r^2}{5G_2} H_{\varphi} H_{\varphi}^* \sin \vartheta \, d\vartheta \, d\varphi
 \end{aligned}$$



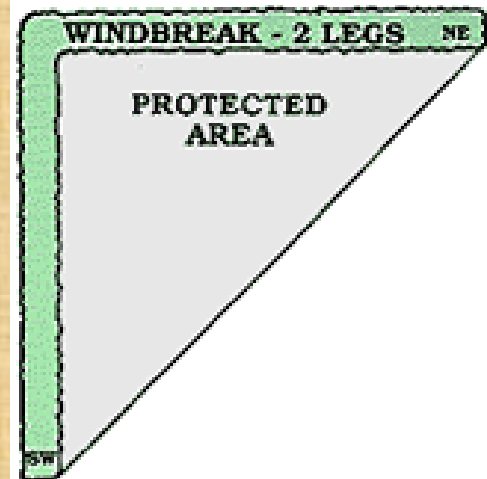
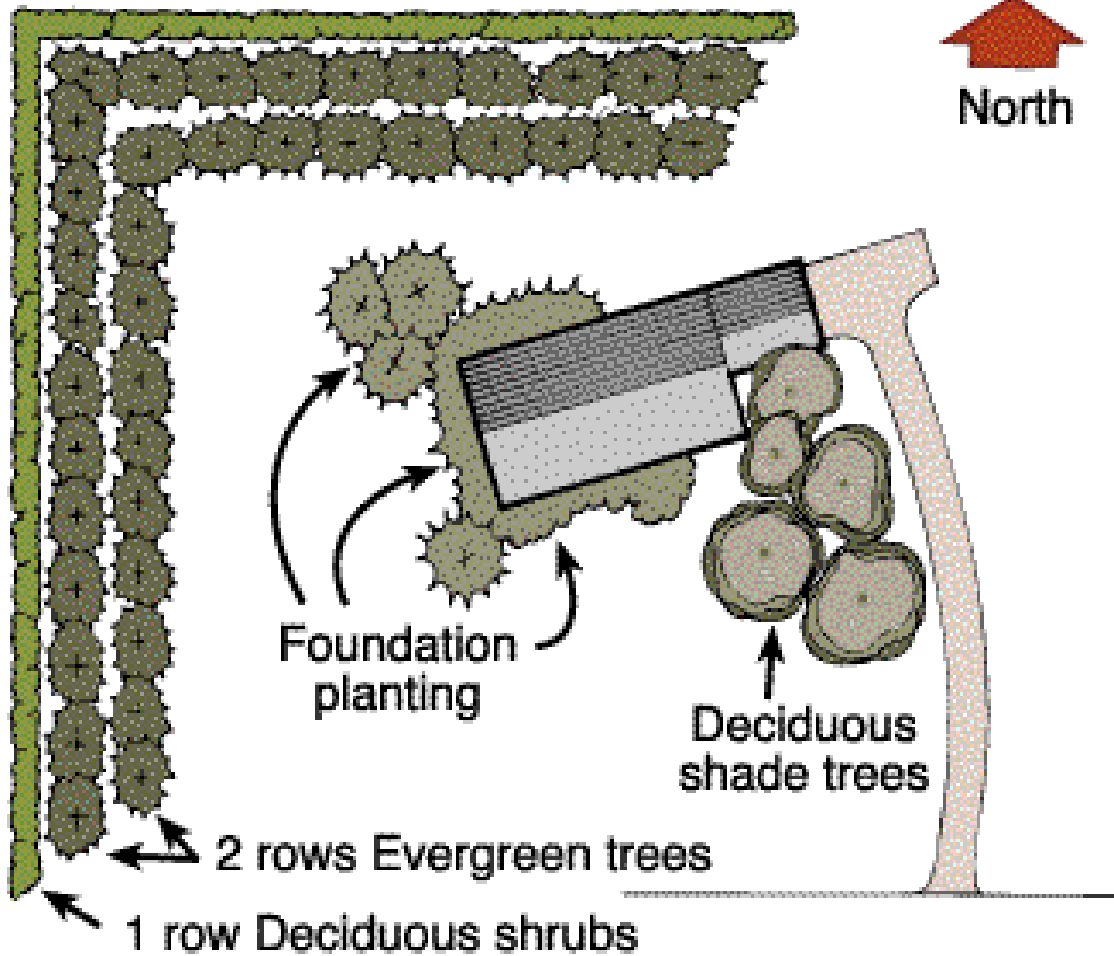
# DESIGN CRITERIA

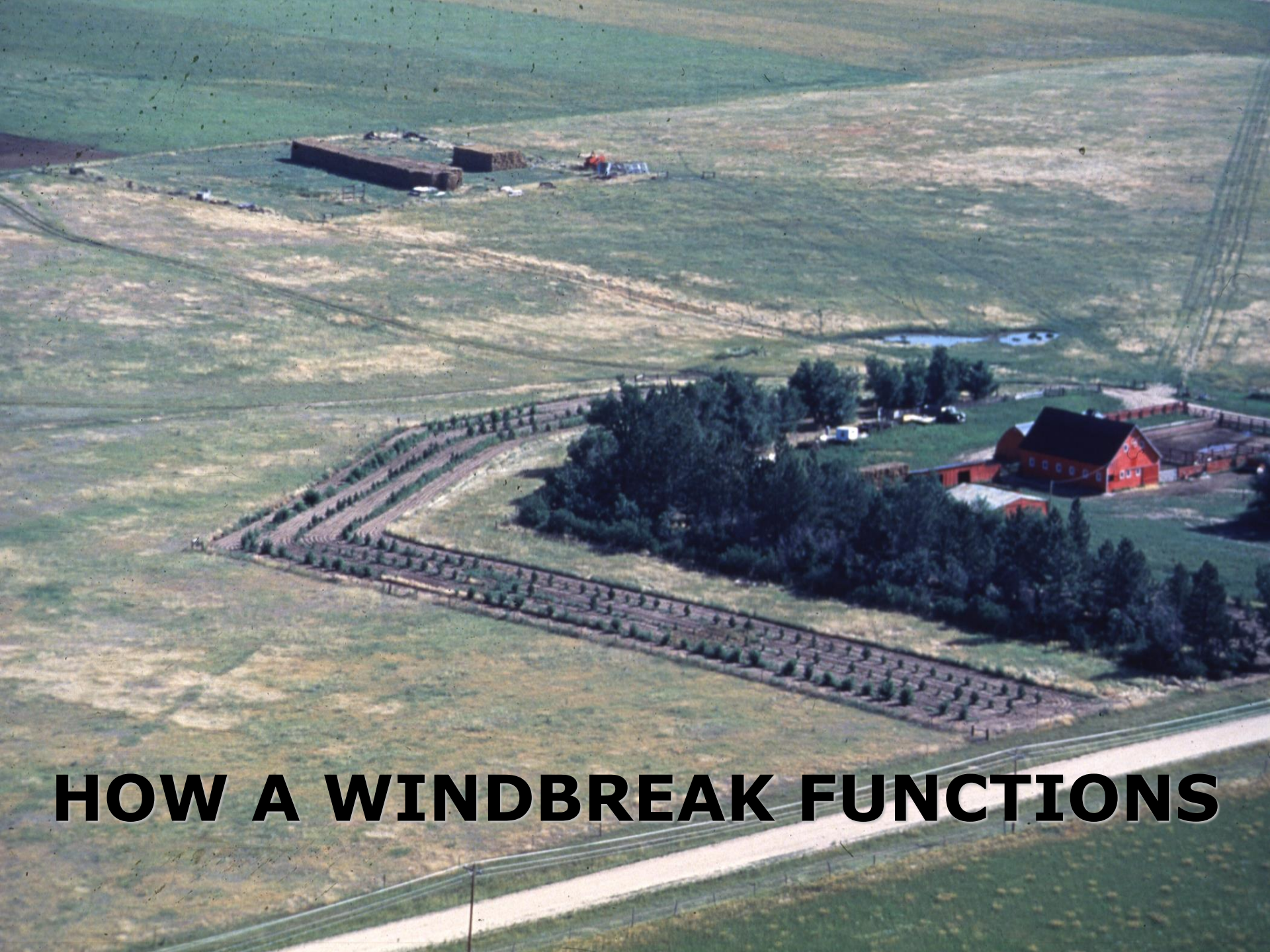
- **150 feet away from the prevailing wind sides of buildings, driveways, or roads with outside row of windbreak**
- **40 to 60 feet from roads or driveways from perpendicular rows**
  - **50 feet past object of protection**
  - **50 feet away from leach field**
    - **Utility easements**
    - **Check fetch distance**

Northwesterly winds



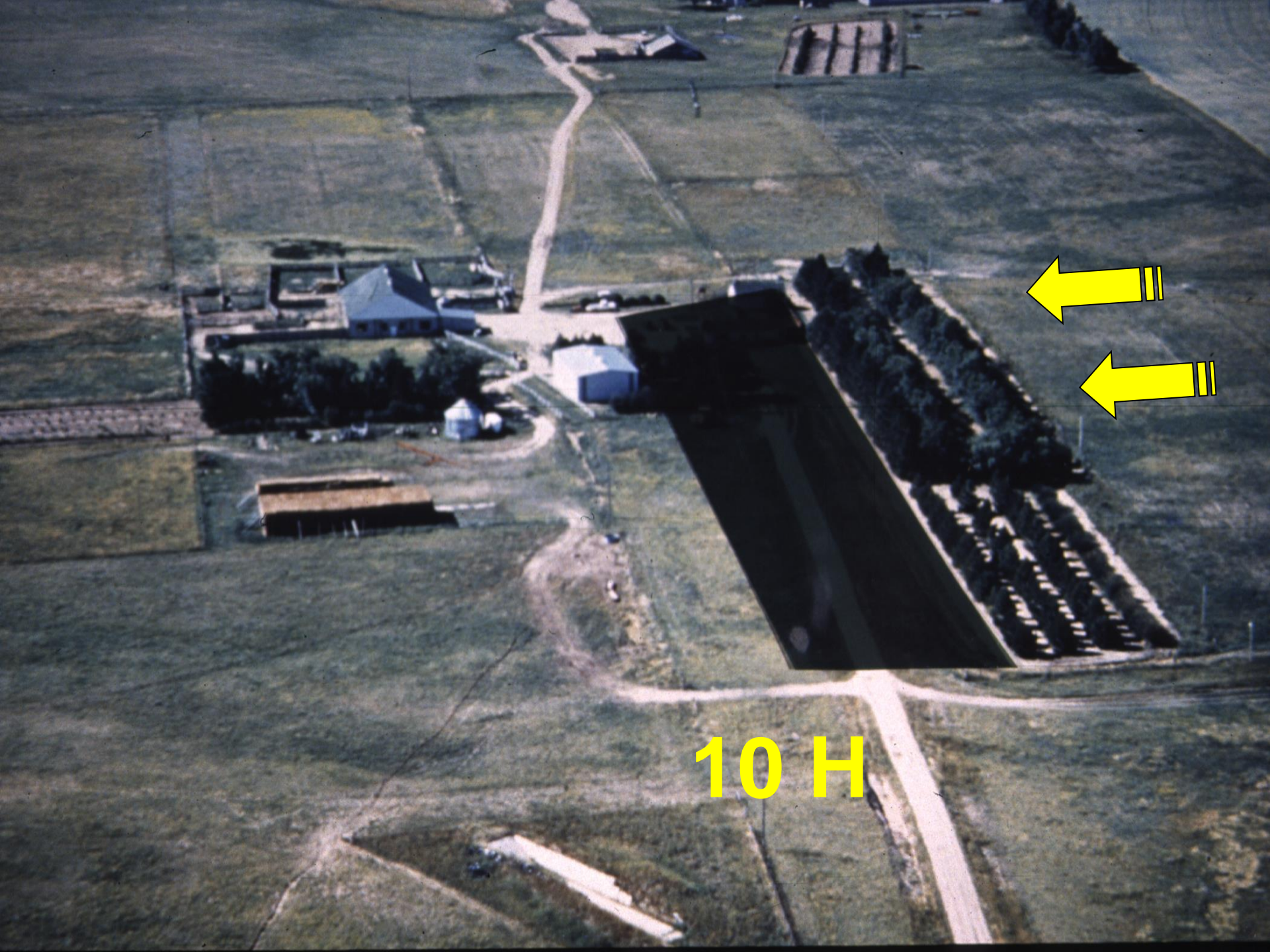
North



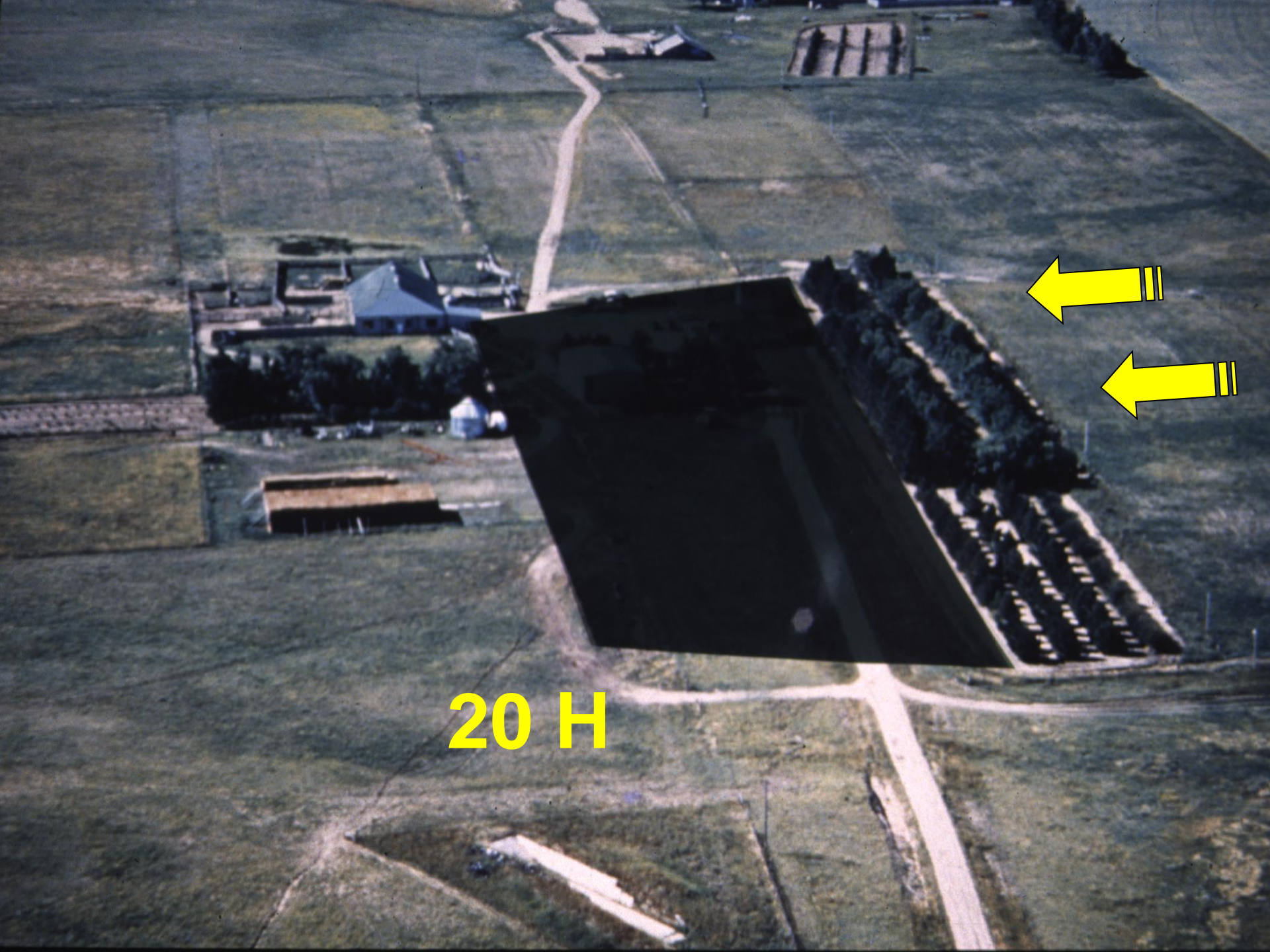


**HOW A WINDBREAK FUNCTIONS**

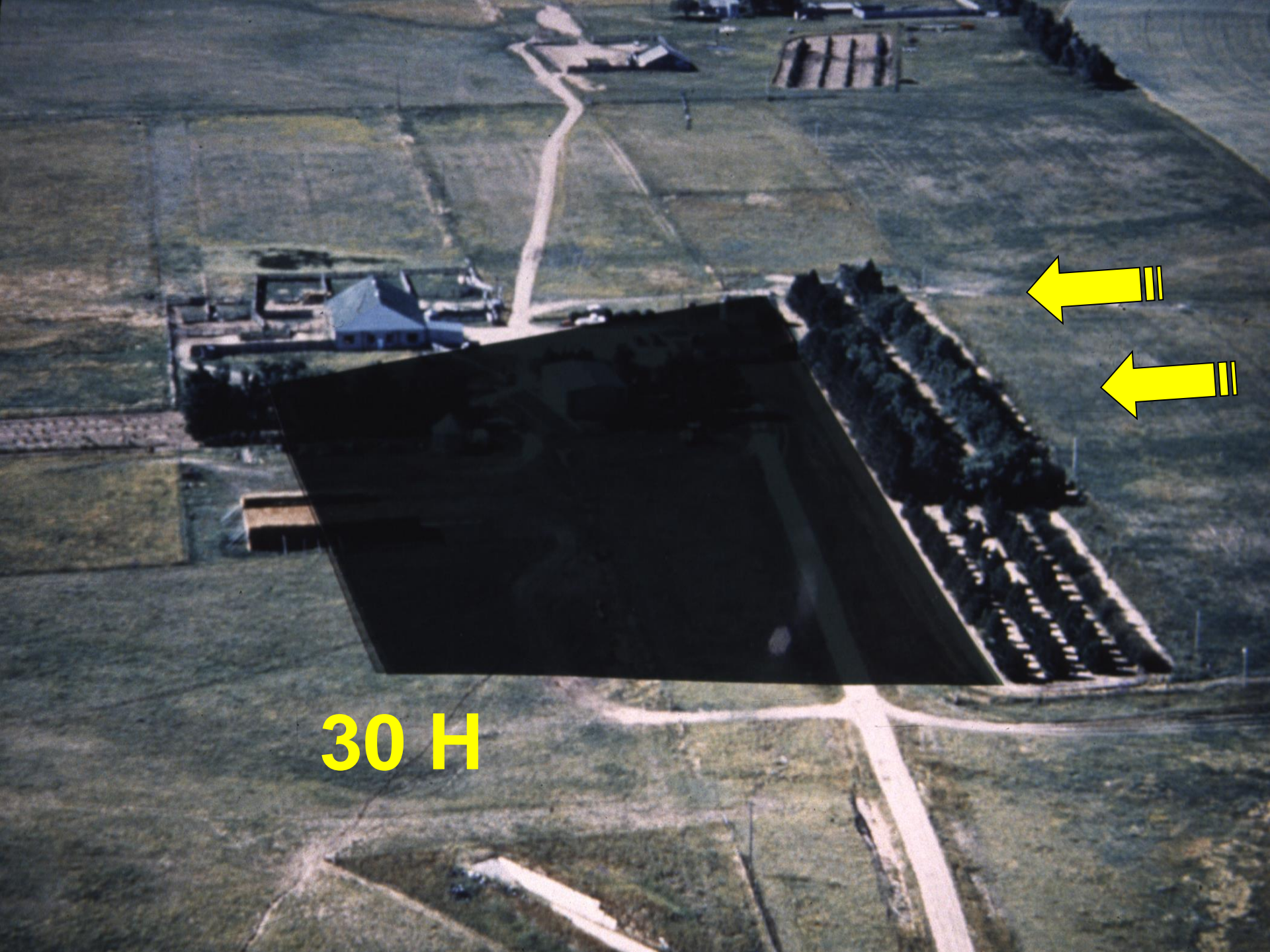




10 H



20 H



**30 H**

# **SPECIES SELECTION**

- **soil type**
- **water availability**
- **topography**
- **wildlife value**
- **purpose of tree planting**
- **climate and elevation**



# CHOKECHERRY



# NATIVE PLUM



# CARAGANA



# COTONEASTER



# ROCKY MOUNTAIN JUNIPER



# EASTERN RED CEDAR



# PONDEROSA PINE



# AUSTRIAN PINE







**COLORADO BLUE SPRUCE**

# IMPORTANCE OF QUALITY SITE PREP



# LIVESTOCK EXCLUSION FENCE



# PLANTING SEEDLINGS



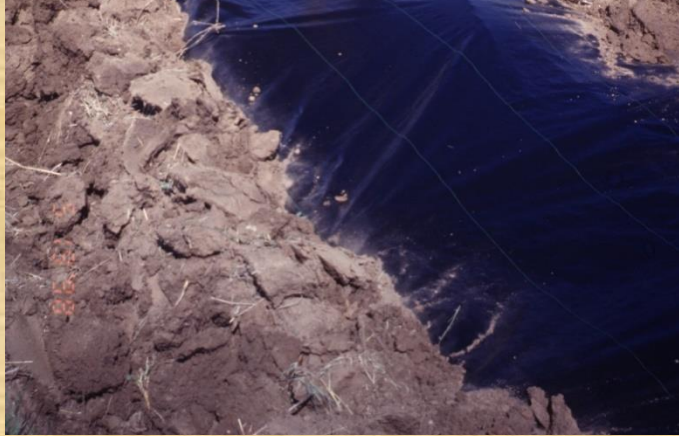


# TREE DANCE OR STEPPING IN THE TREES



# FABRIC MULCH INSTALLATION







# **IMPORTANCE OF MAINTENANCE**

- **weed control**
- **watering**
- **insect and disease control**
- **pest control**
- **tree protection from wind**
- **fabric inspection**

# WEED CONTROL



**MECHANICAL**

**FABRIC MULCH**



# MOWING



# ANIMAL DAMAGE CONTROL



# WIND PROTECTION





# INSECT AND DISEASE CONTROL



# WHAT DOES TENDER LOVING CARE MEAN TO A TREE?





**TENDER LOVING CARE TO A TREE  
IS...**

**10 GALLONS OF WATER  
PER INCH OF  
DIAMETER PER WEEK  
DURING THE SUMMER**

**10 GALLONS OF WATER  
PER INCH OF DIAMETER  
PER MONTH DURING THE  
WINTER**

**“My grass is green so my trees are getting enough water”**

**Grass roots in the first few inches  
Trees root in the top 12 to 18 inches**

**Grass needs frequent light watering  
Trees need less frequent heavy watering**

**Trees are generally poor competitors  
for water compared to grass**

A sunset over a body of water with a city skyline silhouette. The sky is filled with colorful clouds in shades of blue, orange, and red. The sun is low on the horizon, casting a warm glow. The foreground shows the dark, rippling surface of the water. In the distance, a silhouette of a city skyline is visible, including a prominent tower with a flag on top.

**Questions??**