

Advantages and Disadvantages of Windbreaks

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Advantages

- ┌ Canker reduction
- ┌ Wind scar reduction
- ┌ Wildlife habitat
- ┌ Reduce wind/soil erosion

Disadvantages

- ┌ Loss of space
- ┌ Shading effects
- ┌ Competition for water and nutrients
- ┌ Establishment costs
- ┌ Maintenance costs
- ┌ Complicates equipment movement
- ┌ Effects on microclimate, pest populations, etc

Purpose of windbreaks for canker control

- Reduce spread of canker
- Most importantly, reduce canker severity

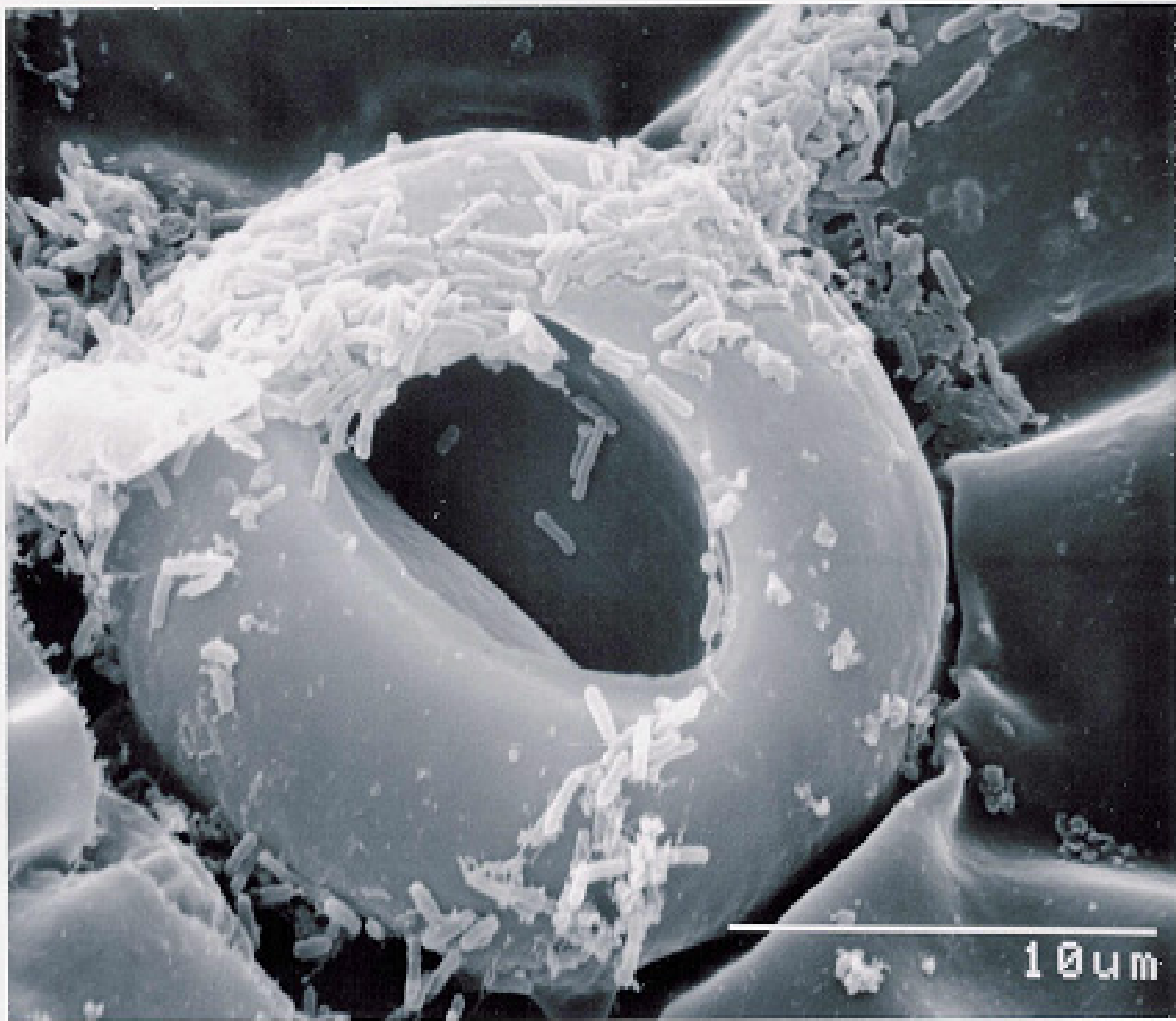


Photo Courtesy of J.H. Graham, CREC, Lake Alfred

Important Characteristics of Windbreaks

- Reduce wind speed to less than 20 mph (or 8 m/s)
- Avoid high density, no need to stop the wind, just slow it down
- Avoid very tall windbreaks, shade excessively, susceptible to breakage
- Windbreak distance effects
 - ▮ 10X the height of windbreaks downwind, some upwind effect as well

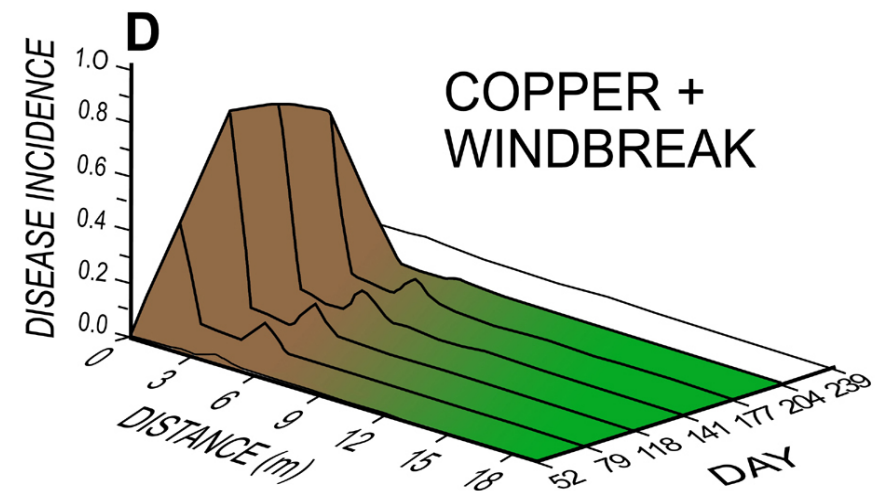
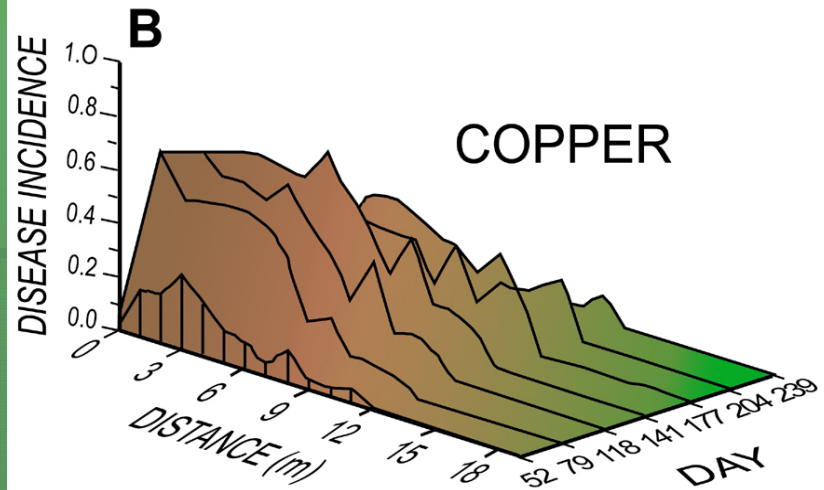
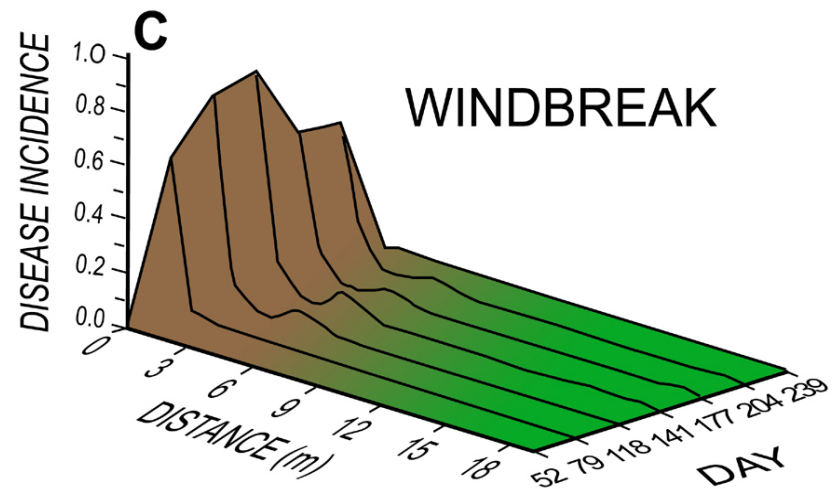
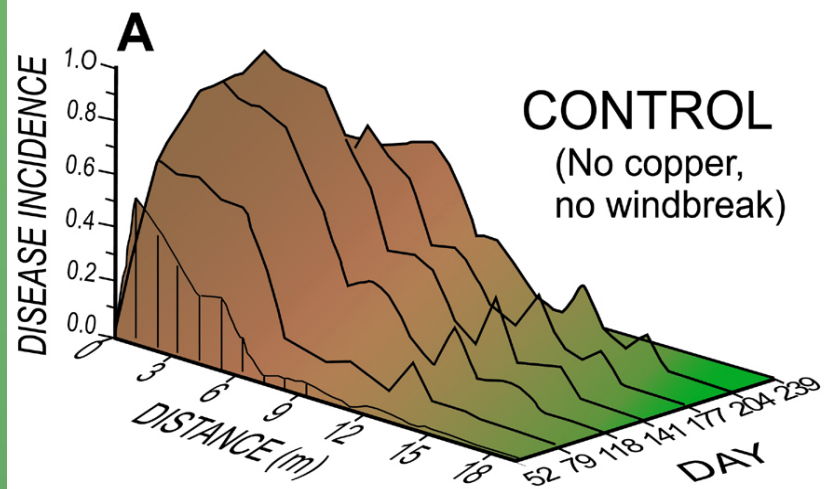
Effect of wind exposure on canker infection in Argentina - Grapefruit

Tree Sector	Lesions	
	Leaves	Fruit
SW	8.2 a	82 a
NW	2.5 b	43 b
SE	2.9 b	15 c
NE	1.1 b	6 c

Predominant winds from SW

Internal windbreak effects with Marsh Grapefruit

Row	Exposure	Lesions	
		Leaves	Fruit
A	Exposed	4.3 ab	32 b
B	Protected	2.7 bc	9 b
C	Protected	1.1 c	19 b
D	Protected	5.2 a	23 b
E	Prevailing Winds	5.0 a	91 a



Timmer and Gottwald, 1992

Windbreaks (*Grevillea robusta*) are essential to reduce the effect of windblown rain on infection



Casuarina windbreak for grapefruit in Salta, Argentina (NW) reduces canker incidence to a trace



Trees/Shrubs

- Southern Red Cedar
- Pines (multi row, stratified)
- Eucalyptus
- Non-spreading Bamboo
- Wax myrtle
- Viburnum

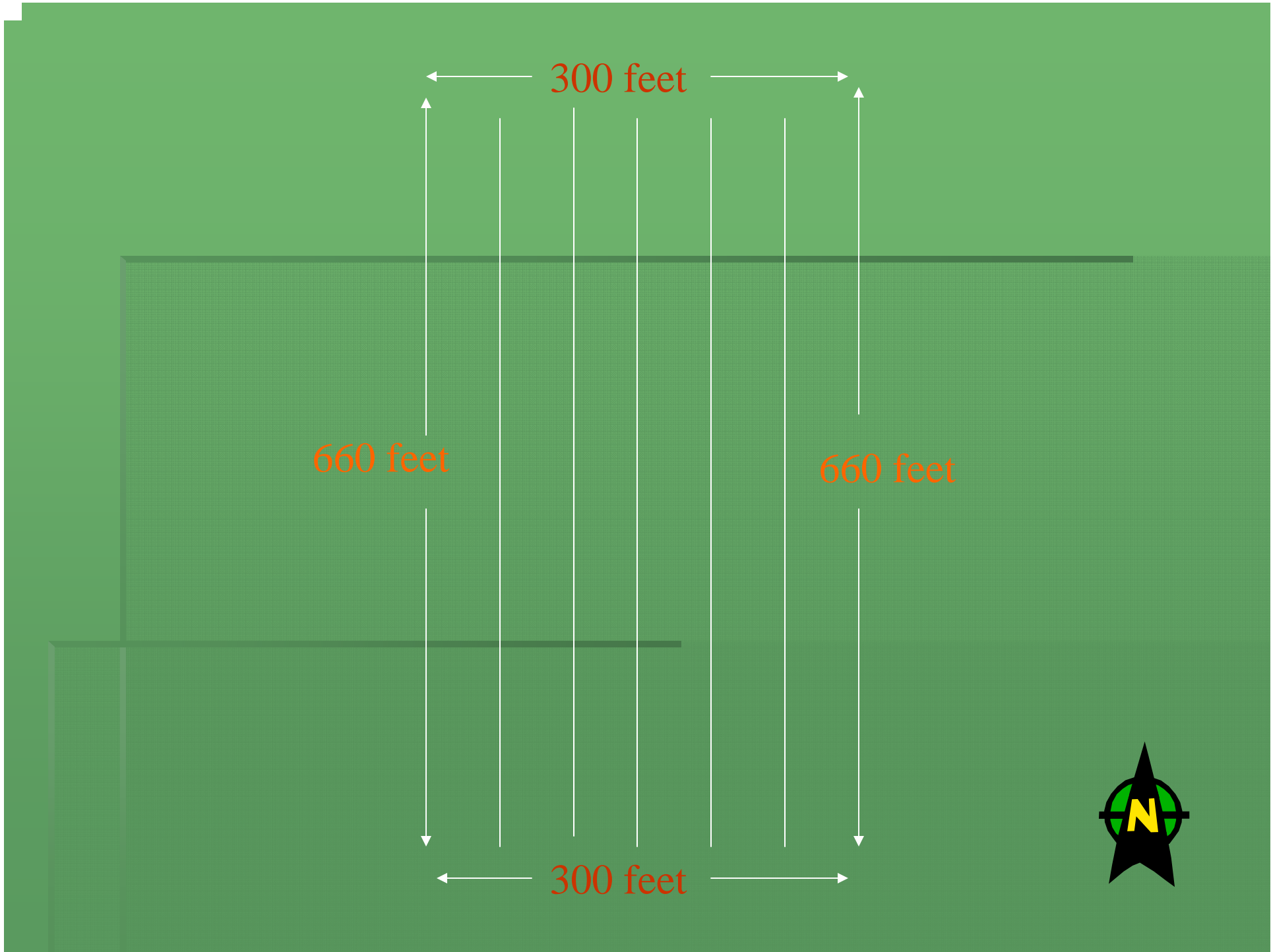


Exposure: Old nursery was located next to citrus. Windbreak placed on side next to the grove



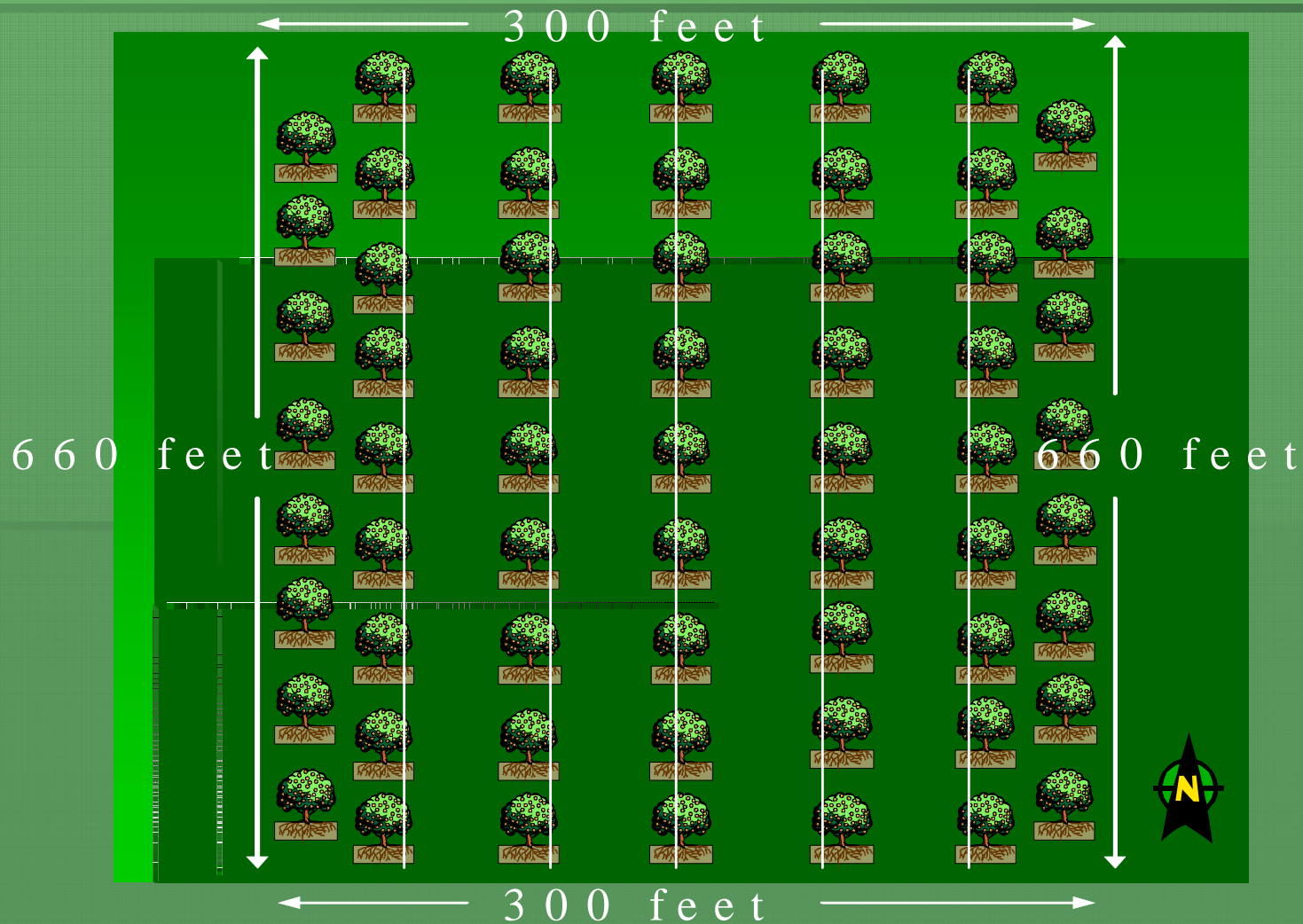
Need for windbreaks, size of area surrounded

- Fresh citrus, grapefruit, early oranges
 - ┌ Windbreaks around each 5 – 10 acres, preferably all sides
- Processing – Early oranges-Valencias
 - ┌ 30 ft windbreaks each 300 ft effect
 - ┌ Down the row only



Citrus Windbreaks

Double rows of citrus on outside rows
every 300ft



Recommendations

- plant windbreaks now for fresh market grapefruit and early oranges
- plant windbreaks in available space along fence rows, ditches, wetlands for processed fruit
- use available species such as pines for the moment until availability is greater for other species