Population Density Effects on Sweet Corn Tip Fill

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Tip Fill in Sweet corn

- Excellent tip fill is an important trait in sweet corn for fresh market
- Lesser importance in corn for processing
  - Very poor tip fill could decrease yields and be negative for frozen corn on the cob

Tip fill is affected by

- Genetics
- Disease
  - Common rust
  - MDMV
- Stress
  - Heat
  - Drought
- Population density
- Genetic X Environment

Objectives

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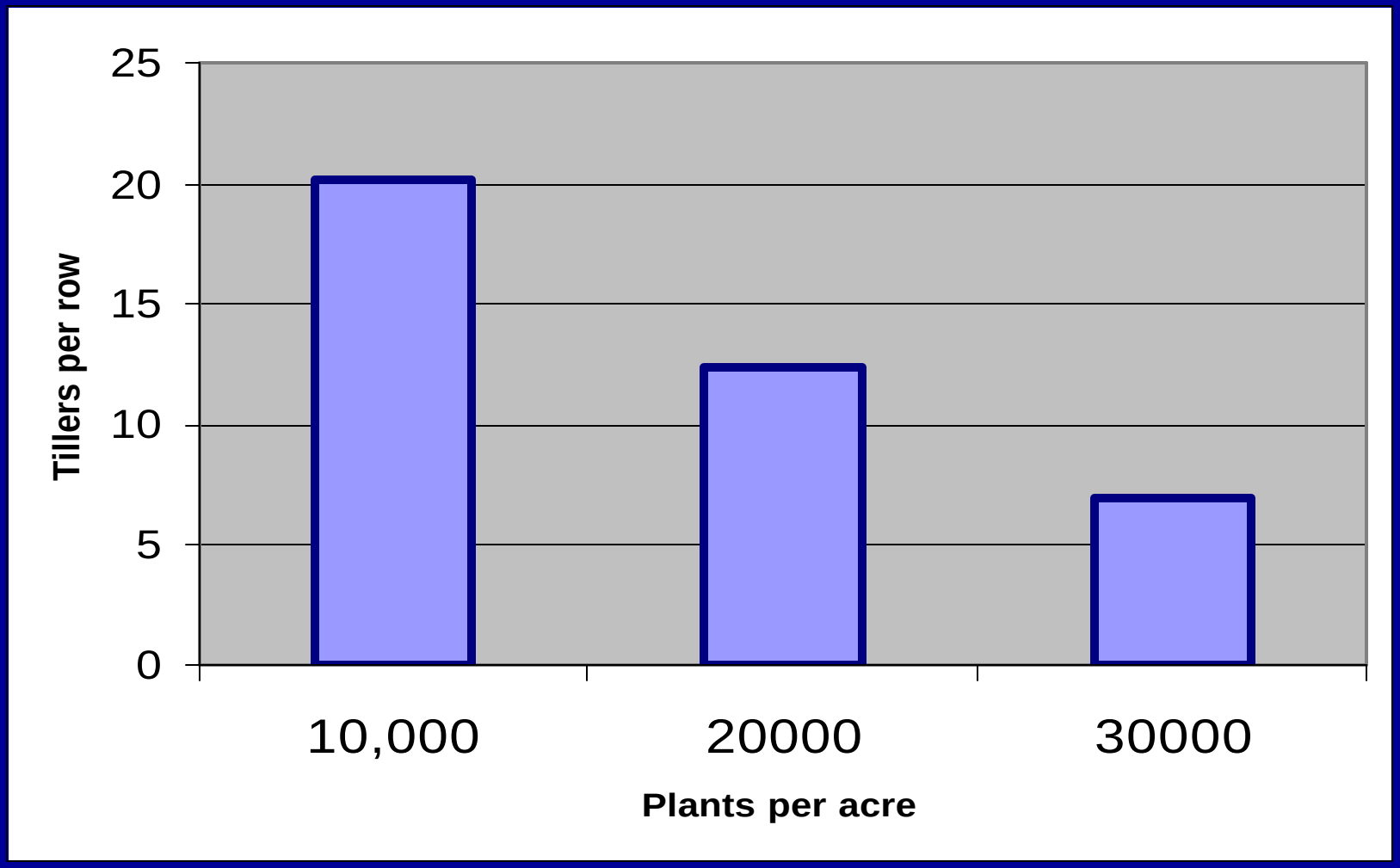
- Understand the biological basis of poor tip fill
- Improve sweet corn tolerance to population stress
  - High population densities and proper spacing can improve weed control
- Identify for germplasm for future studies

Procedures

- Three environments
  - May 1, 2002
  - June 15, 2002
  - May 10, 2003
  - (no irrigation)
- Three densities
  - 10,000 plants/acre
  - 20,000 plants/acre
  - 30,000 plants/acre
- Six hybrids
  - Shogun
  - 710a
  - Zenith
  - HMX8392s
  - Radiance
  - Supersweet Jubilee
- Data collected 25-20 days after polliantion

Tiller Number



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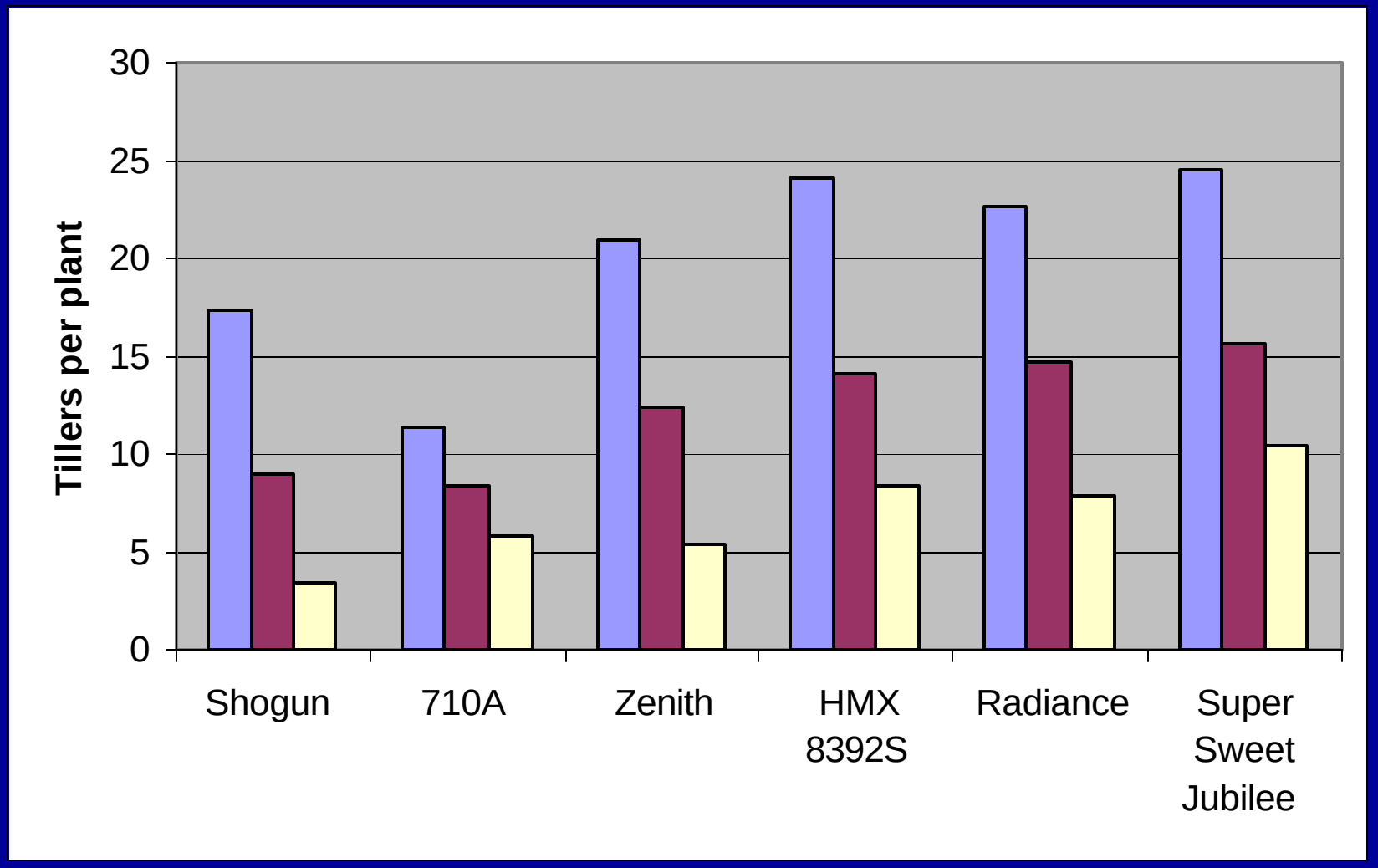
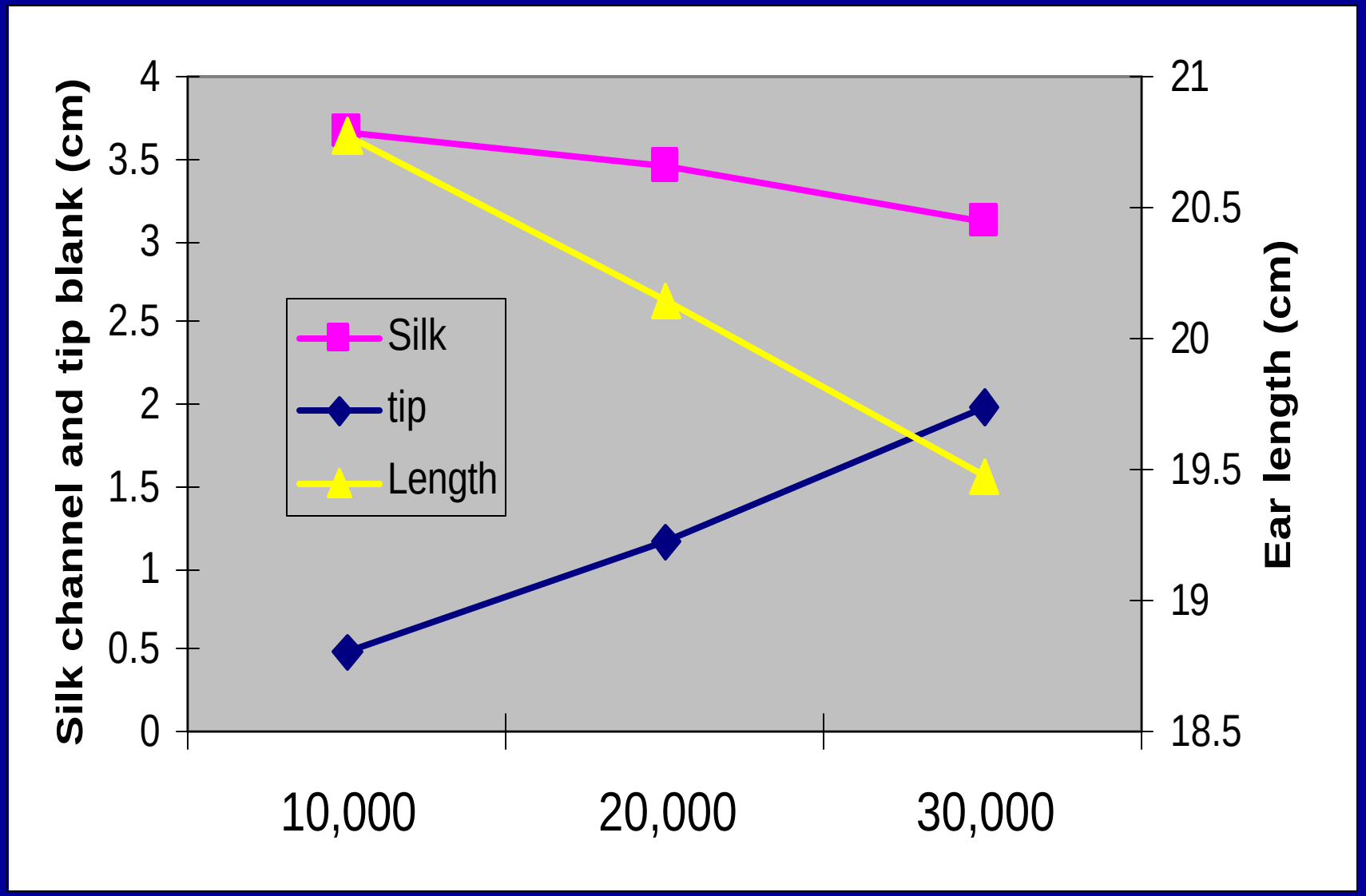
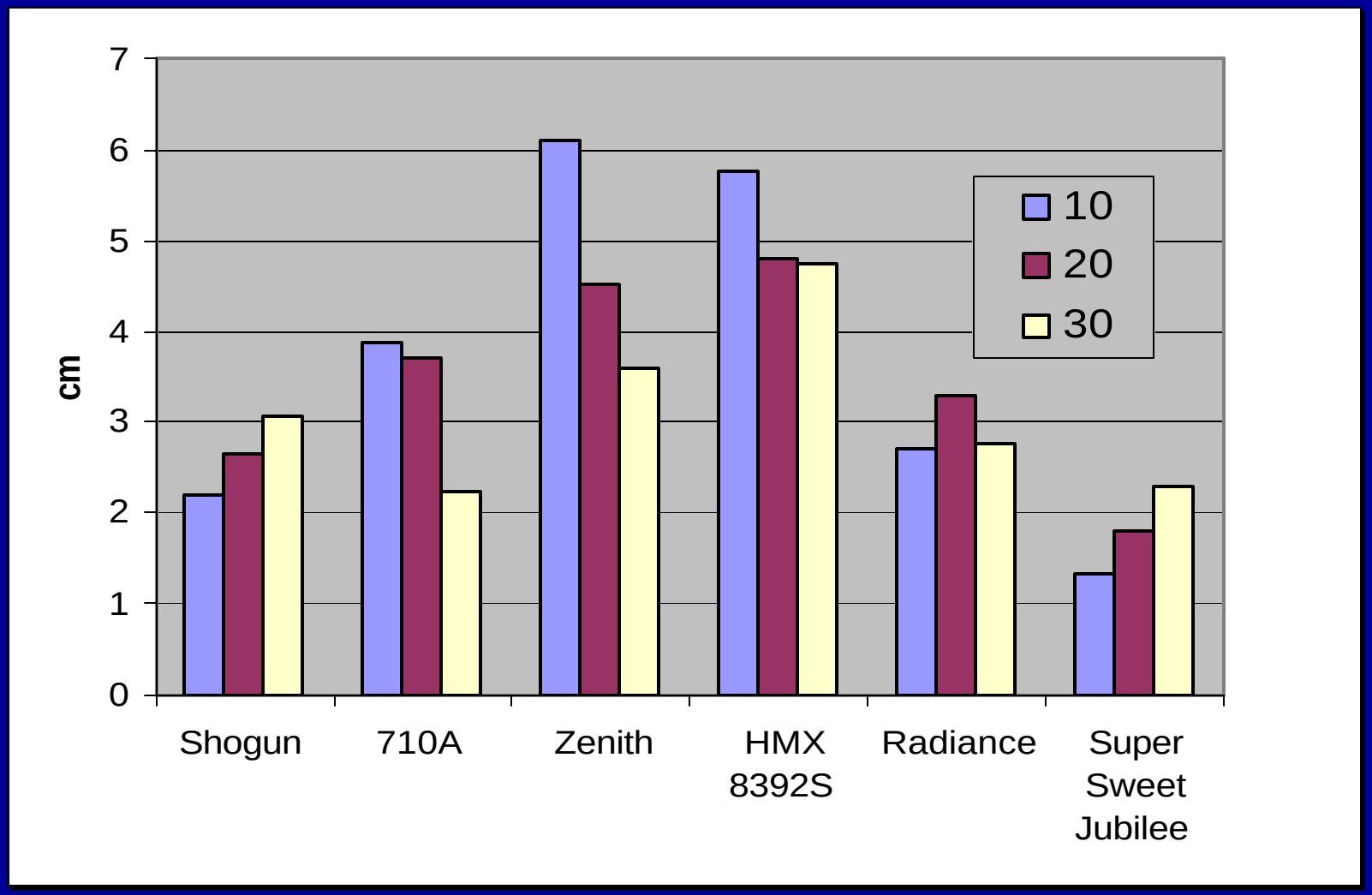


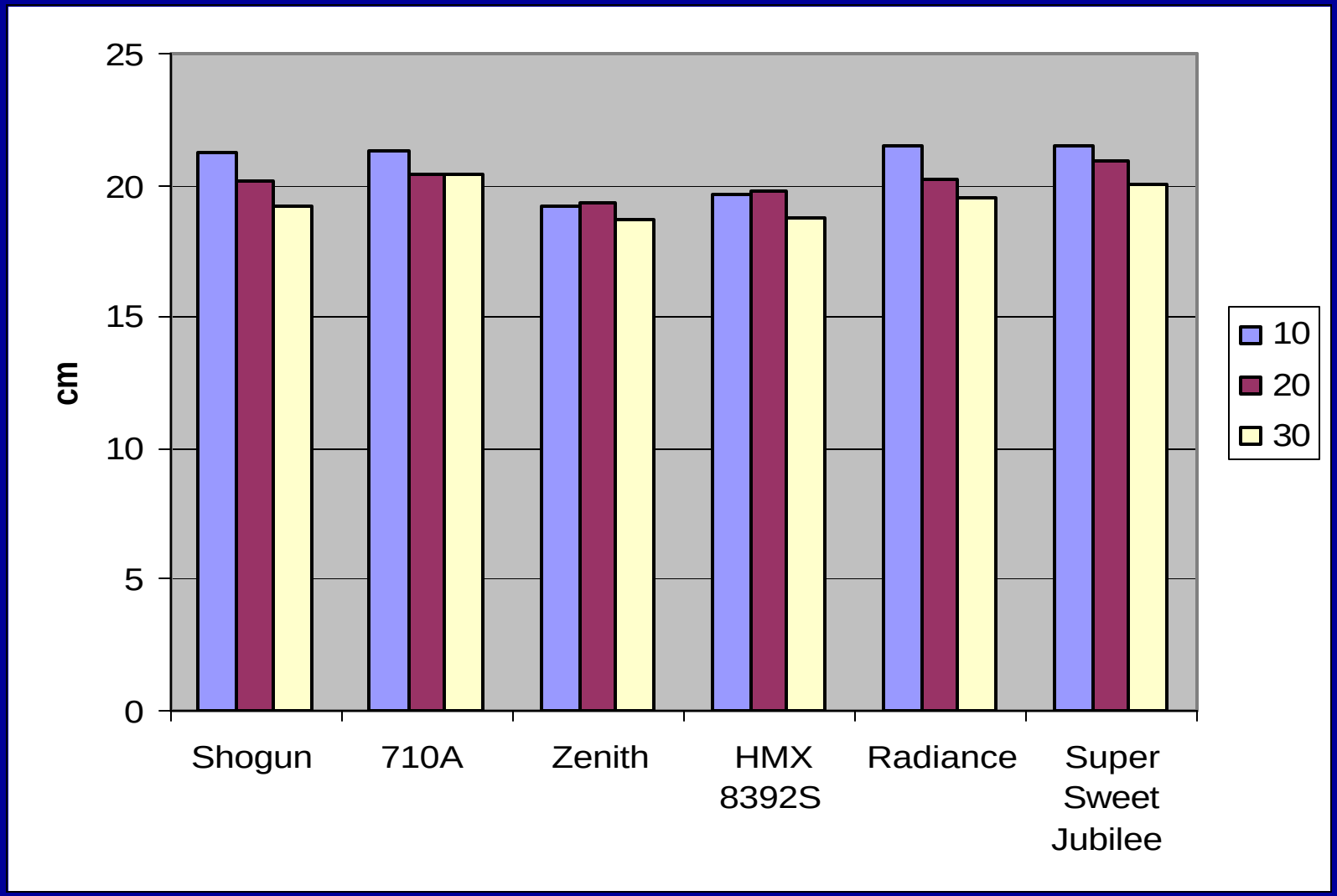
Silk channel, Tip Blank, and Ear Length



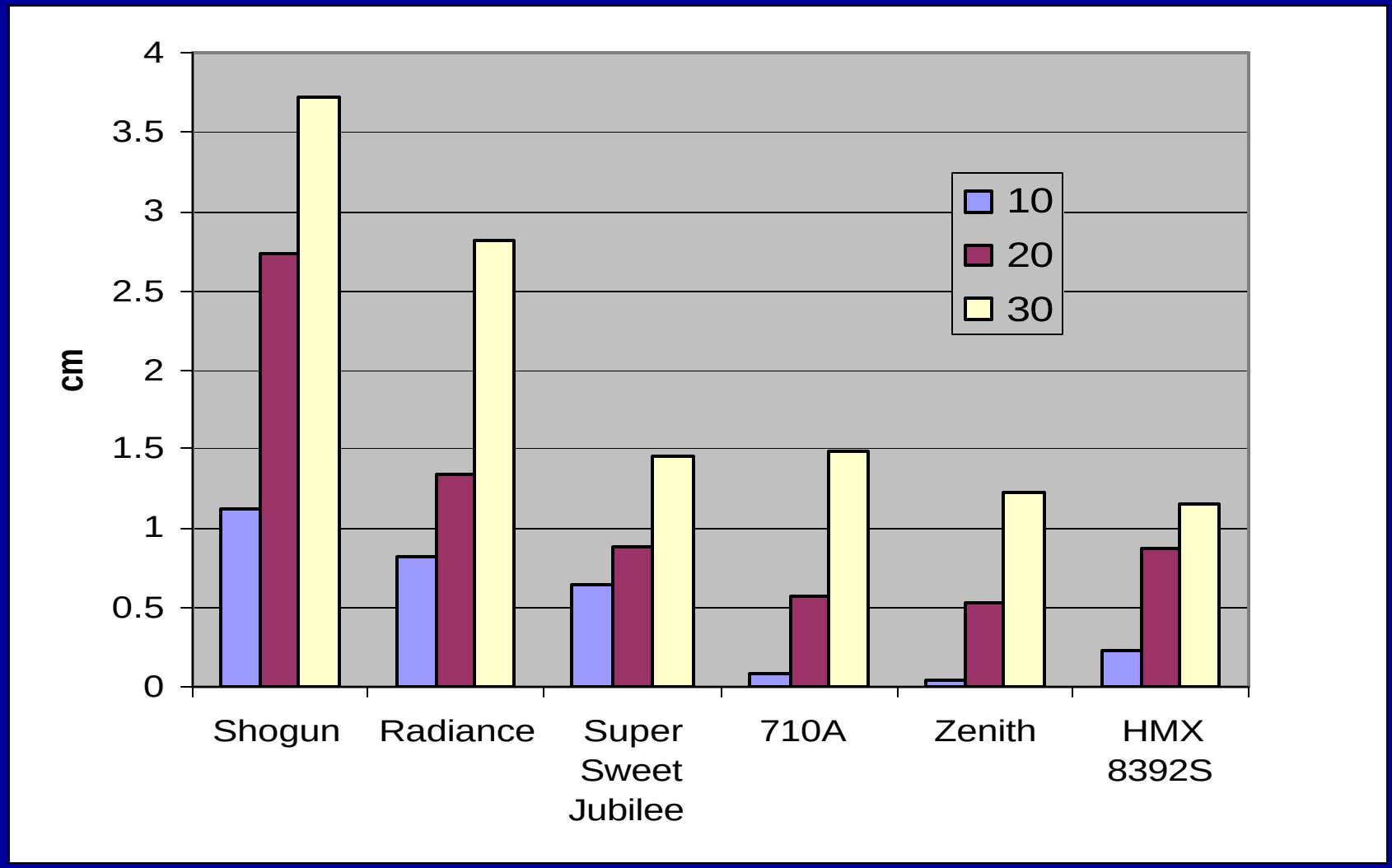
Silk Channel Length



Ear Length


25
20
15
10
5
0
cm
Shogun
710A
Zenith
HMX 8392S
Radiance
Super Sweet Jubilee
10
20
30

Tip Blank


4
3.5
3
2.5
2
1.5
1
0.5
0
cm
10
20
30
Shogun
Radiance
Super Sweet Jubilee
710A
Zenith
HMX 8392S

Conclusions

- 30,000 plant per acre good density for maximizing differences
- Wide range in response 1 - 2.5 cm
- All hybrids did respond negatively to population stress
- What is the basis of the response?