

# Canopy Management Evaluation of Three Arkansas Table Grape Cultivars: Gratitude, Faith, and Jupiter Grown Under a High Tunnel System



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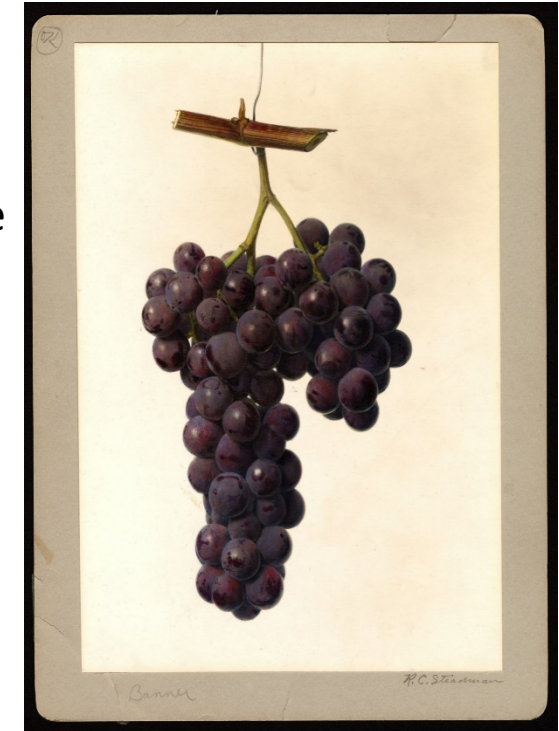
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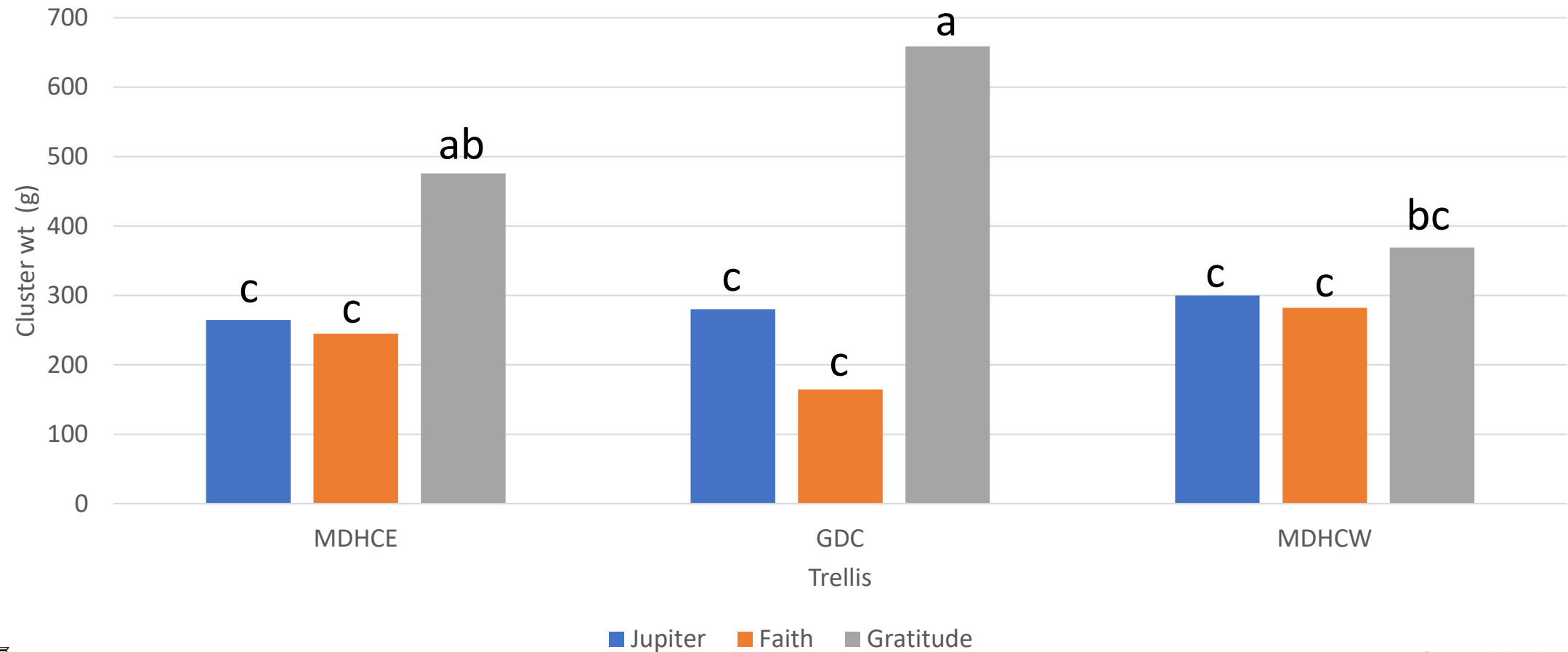
# Results: 2018 Fayetteville Data

| Table 2. 2018 Fayetteville location harvest vine performance for table grape cultivars: Faith, Gratitude and Jupiter |                               |                                    |                              |                           |
|--|-------------------------------|------------------------------------|------------------------------|---------------------------|
|  | Total Yield (kg) <sup>z</sup> | No. Clusters per Vine <sup>z</sup> | Clusters wt (g) <sup>z</sup> | Berry wt (g) <sup>z</sup> |
| CV   |                               |                                    |                              |                           |
| Faith  | 11.98b                        | 66.67b                             | 230.61b                      | 3.26b                     |
| Gratitude  | 9.88b                         | 29.44c                             | 501.12a                      | 2.74c                     |
| Jupiter  | 21.82a                        | 89.67a                             | 281.66b                      | 4.23a                     |
| P-value  | <0.0001                       | <0.0001                            | <0.0001                      | <0.0001                   |
| Trellis  |                               |                                    |                              |                           |
| MDHCE  | 18.69a                        | 74.06a                             | 328.56                       | 3.53                      |
| GDC  | 10.15b                        | 43.78b                             | 367.82                       | 3.42                      |
| MDHCW  | 14.84ab                       | 67.94a                             | 317.01                       | 3.26                      |
| P-value  | 0.0079                        | 0.0019                             | NS                           | NS                        |
| Thinning   |                               |                                    |                              |                           |
| No Thinning  | 14.65                         | 66.48                              | 338.57                       | 3.33                      |
| Pea size   | 14.78                         | 57.27                              | 337.02                       | 3.49                      |
| P-value  | NS                            | NS                                 | NS                           | NS                        |
| Interactions (P-values)  |                               |                                    |                              |                           |
| CV x Trellis   | NS                            | NS                                 | 0.0004                       | 0.0033                    |
| CV x Thinning  | NS                            | NS                                 | NS                           | NS                        |
| Trellis x Thinning   | NS                            | NS                                 | NS                           | NS                        |
| CV x Trellis x Thinning  | NS                            | NS                                 | NS                           | NS                        |

<sup>z</sup> Means with different letter(s) for each attribute are significantly different (p<0.05) using Tukey's Honest Significant Differences

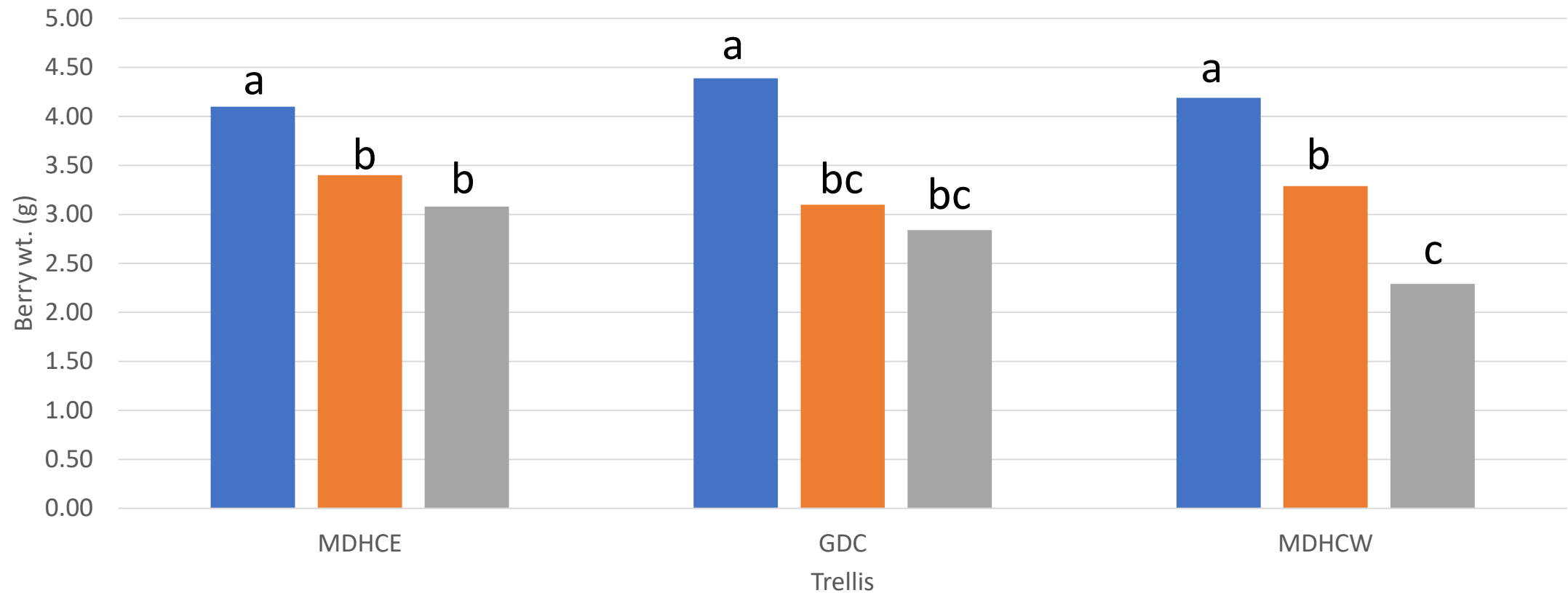
# Results: 2018 Fayetteville Interactions

Fig. 1. 2018 Interactions of cultivar by trellis for cluster weight for three table grape cultivars (Jupiter, Faith, and Gratitude) at Fayetteville, AR



# Results: 2018 Fayetteville Interactions

Fig. 2. 2018 interactions of cultivar by trellis for berry weight (g) for three table grape cultivars (Jupiter, Faith, and Gratitude) at Fayetteville, AR



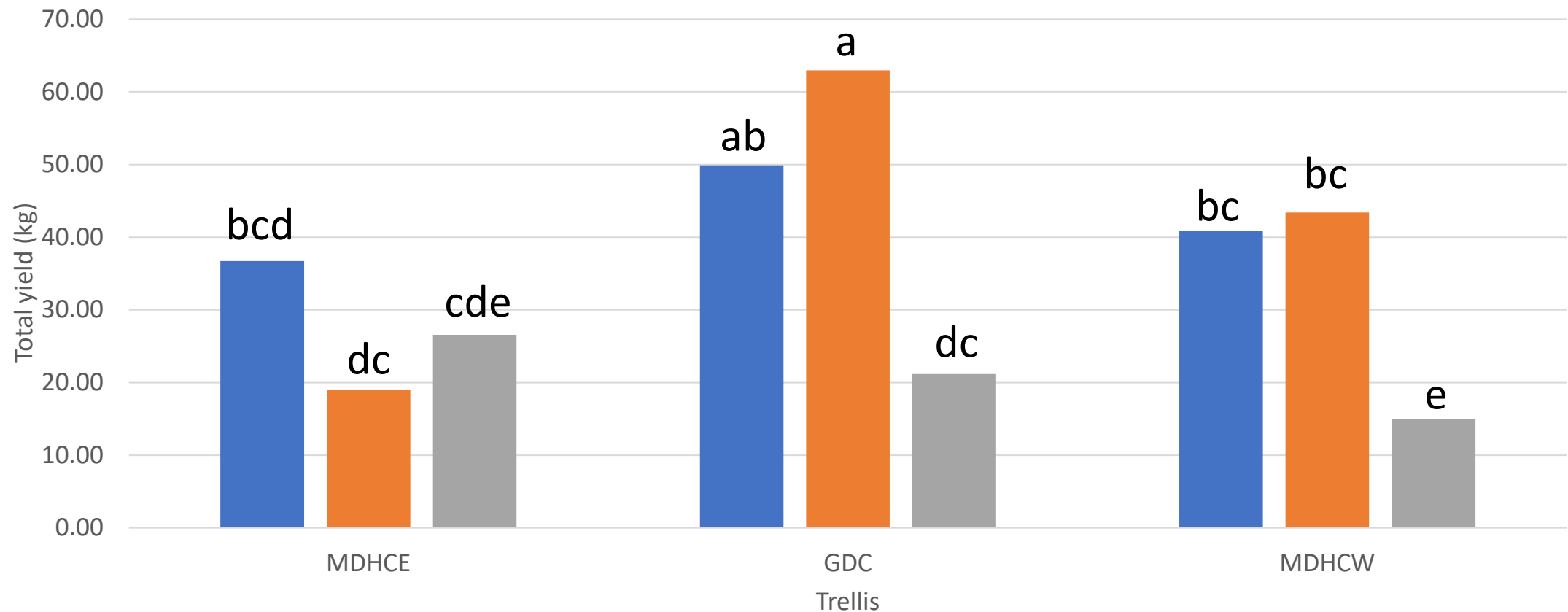
# Results: 2019 Fayetteville Data

| Table 3. 2019 Fayetteville location harvest vine performance for table grape cultivars: Faith, Gratitude and Jupiter |                               |                                    |                              |                           |
|--|-------------------------------|------------------------------------|------------------------------|---------------------------|
|  | Total Yield (kg) <sup>z</sup> | No. Clusters per Vine <sup>z</sup> | Clusters wt (g) <sup>z</sup> | Berry wt (g) <sup>z</sup> |
| CV   |                               |                                    |                              |                           |
| Faith  | 41.79a                        | 178.17a                            | 254.26                       | 4.60a                     |
| Gratitude  | 20.89b                        | 65.33b                             | 273.24                       | 3.87b                     |
| Jupiter  | 42.50a                        | 197.11a                            | 220.84                       | 4.78a                     |
| P-value  | <0.0001                       | <0.0001                            | NS                           | <0.0001                   |
| Trellis  |                               |                                    |                              |                           |
| MDHCE  | 27.43b                        | 103.94b                            | 251.10                       | 4.37                      |
| GDC  | 44.68a                        | 200.00a                            | 255.07                       | 4.50                      |
| MDHCW  | 22.08b                        | 136.67b                            | 242.18                       | 4.39                      |
| P-value  | 0.0006                        | 0.0001                             | NS                           | NS                        |
| Thinning   |                               |                                    |                              |                           |
| No Thinning  | 34.63                         | 140.43                             | 244.73                       | 4.46                      |
| Pea size   | 35.50                         | 153.31                             | 254.17                       | 4.37                      |
| P-value  | NS                            | NS                                 | NS                           | NS                        |
| Interactions (P-values)  |                               |                                    |                              |                           |
| CV x Trellis   | <0.0001                       | <0.0001                            | NS                           | NS                        |
| CV x Thinning  | NS                            | NS                                 | NS                           | NS                        |
| Trellis x Thinning   | NS                            | NS                                 | NS                           | NS                        |
| CV x Trellis x Thinning  | NS                            | NS                                 | NS                           | NS                        |

<sup>z</sup> Means with different letter(s) for each attribute are significantly different (p<0.05) using Tukey's Honesty Significant Differences

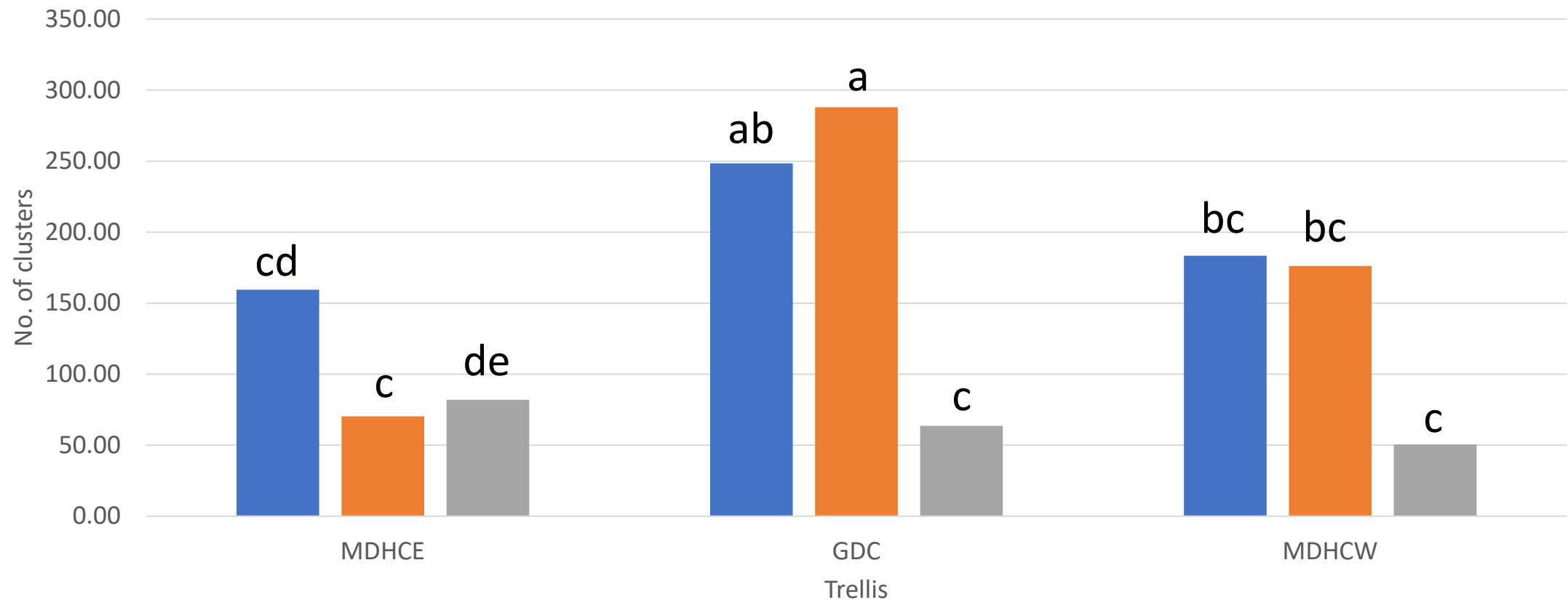
# Results: 2019 Fayetteville Interactions

Fig. 3. 2019 Interactions of cultivar by trellis for total yield (kg) for three table grape cultivars (Jupiter, Faith, and Gratitude) at Fayetteville. AR



# Results: 2019 Fayetteville Interactions

Fig. 4. 2019 interaction effect of cultivar by trellis for number of clusters for three table grape cultivars (Jupiter, Faith, and Gratitude) at Fayetteville, AR



# Conclusions

- In 2018, 'Jupiter' performed well under the high tunnel environment
  - Highest yield per vine (21.82 kg)
  - Greatest number of clusters (89.67)
- In 2019, 'Faith' and 'Jupiter' had similar yields
- 'Gratitude' had the lowest yield and number of clusters for both years
- In 2018 'Gratitude' had the largest cluster size
- In 2018, MDHCE and MDHCW had the highest total yield and greatest number of clusters compared to the other trellis systems
- Thinning treatment had no significant effect in either year of the study
- In 2018 there were cultivar by trellis interactions for cluster and berry weights
- In 2019 there were cultivar by trellis interactions for total yield and number of clusters





# Overall Project Conclusions

- The sustainability of table grape production can be enhanced in geographic areas where there are climatic challenges by utilizing HTs
  - Improved yields
  - Improved fruit quality
  - Reduced pesticide sprays
  - Cultivar differences
    - Gratitude: winter hardiness
    - Faith: diseases and loved by birds
  - Increased labor inputs
  - Suitable for small acreage growers



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## Questions?