Introduction

By the end of the colonial period, members of the Catawba Indian Nation had succeeded in negotiating a variety of challenges that threatened their political autonomy. Having served as auxiliaries for the British colonies since 1708, they had arranged their towns in close proximity to each other for the purpose of efficient coordination and mobilization. This strategy made them a target for enemy raids and also vulnerable to being surrounded by expanding colonial settlements. These circumstances put a strain on Catawba hunting and foraging practices, a situation complicated by a regional drought from 1755 to 1759. In the years that followed, the Catawba made the difficult decision to evacuate their towns in response to a high-mortality smallpox epidemic (1759) and Cornwallis’s March during the Revolutionary War (1780). After each of these incidents, members of the Nation returned to re-build their communities.

During the difficult years of the 1750s, it appears that Catawba women maintained their maize farming activities instead of turning to mast or spring-ripening grains for additional carbohydrates (Fitts forthcoming, 2017). This study examines whether their focus on maize production was accompanied by the maintenance of multiple cultivars. It also assesses change in Catawba maize variability through time.

Methods

Previous quantitative studies of maize variability (King 1994, Scarry 1994) have identified row number, exterior cupule width, lower glume width, cupule length, and maximum cob diameter as attributes useful for discriminating among maize cultivars. Measurements were taken for 171 cob sections from 13 smudge pits using calipers with digital input. Each measurement was taken three times, and the average of these three scores was used for analysis. Cob portion, strength of row pairing, and cupules/cm (rounded to the nearest cupule) were also recorded for each cob section.

Analysis

Exploratory data analysis indicates that cupule width, lower glume width, and cob diameter are positively correlated. In order to determine whether cultivars could be identified as clusters, K-means analyses were run using JMP. Solutions were obtained for 0 through 17 clusters. While the data are generally continuous, the 3-cluster solution provided archaeologically interpretable groups. In order to test the robustness of the 3-cluster solution, two randomly-generated subsets of the data (n=85) were also subjected to K-means analysis. Comparable groups and mean attribute measurements were obtained from these two trials.

Conclusions

Three groups can be identified in the Nassaw, Ayers Town, and Old Town maize assemblages:

- Cob with high row numbers (12 and 14). This group accounts for 23-28% of the Nassaw and Ayers Town assemblages, but only 14% of the Old Town assemblage.
- Cob with row numbers ≤10 that have exterior cupule widths above 10 mm, lower glume widths greater than 6 mm, and diameters above 20 mm. This group accounts for 17-18% of the Nassaw and Ayers Town assemblages, and 67% of the Old Town assemblage.
- Cob with row numbers ≤10 that have exterior cupule widths below 10 mm, glume widths smaller than 6 mm, and diameters below 20 mm. This group accounts for 54-60% of the Nassaw and Ayers Town assemblages, and 20% of the Old Town assemblage.

The distribution of cobs attributed to each of the three groups shows an overall similarity between Nassaw and Ayers Town. The presence of more Group 2 cobs in the Old Town assemblage (67%) suggests the acquisition of a new cultivar, or possibly a bottleneck event.

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It appears that during the late colonial period, Catawba women may have been growing at least two different varieties of maize. The similarity between Nassaw and Ayers Town maize indicates continuity in seed stock despite community relocation after the 1759 smallpox epidemic. The smudge pits from Old Town are attributed to the post-Cornwallis habitation (1781-1800). Additional research will be necessary to determine the source of the larger maize varietal being grown at Old Town during this period.

References

Hogg, R. J., and Bayesian Statistics and Coping with the Multigenerational Catawba Nation.