

Seasonal Nutrient Content of Pistachio Leaves in Arizona

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Introduction

The Arizona pistachio industry has expanded to approximately 1214 hectares with a 1987 production of 254 metric tons. The major production areas are located in elevation ranges of 1067-1372 meters. This relatively new crop in Arizona requires the development of optimum cultural practices and knowledge for maximum production. Critical nutritional levels of the basic required nutrients were established by sampling various leaves or leaf parts during the 1985 growing season.

Procedures

During the 1985 growing season a sample consisting of whole leaves including the petiole and a separate sample consisting of mid-leaf leaflets (2) were collected from bearing and non-bearing shoots of 11-year-old bearing 'Kerman' pistachio trees. Samples were collected at monthly intervals beginning May 16 and terminating October 11. Leaves were analyzed for N, P, K, Ca, B and Zn.

Results

Nutrient levels varied for each nutrient as the season progressed for each sampling method (whole leaves including petiole or center two leaflets of whole leaf) and site (bearing or non-bearing shoot) (Figures 1-6). On a dry weight basis, the nutrients N, P and K showed a stabilization or leveling off in whole leaves from non-bearing shoots during the time period of 7/16-8/15. This phenomenon was rather dramatic for N and P when compared to other sampling methods or sites (Figures 1 and 2). K was very similar to N and P regarding stabilization for the time period 7/16-8/15 (Figure 3). A similar trend was observed for Zn (Figure 5). Leaflets sampled from non-bearing shoots were favored for B leaf content during the period of 7/16-8/15 (Figure 6).

Conclusion

The data suggest that whole leaves, including the petiole, collected from the middle of current season non-bearing shoots from July 15 to August 15 should be utilized in accessing the nutrient status of pistachio trees.

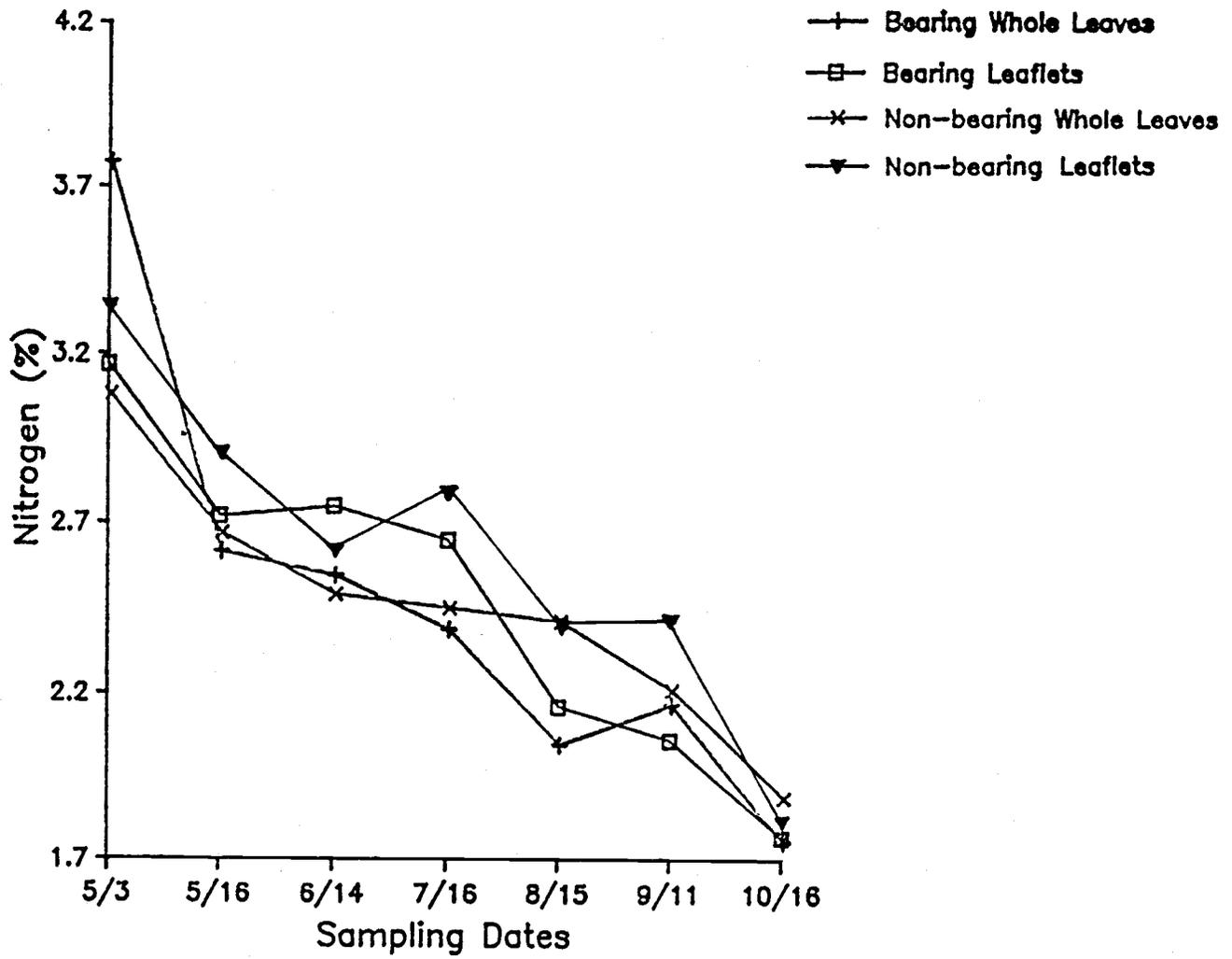


Figure 1. Nitrogen composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.

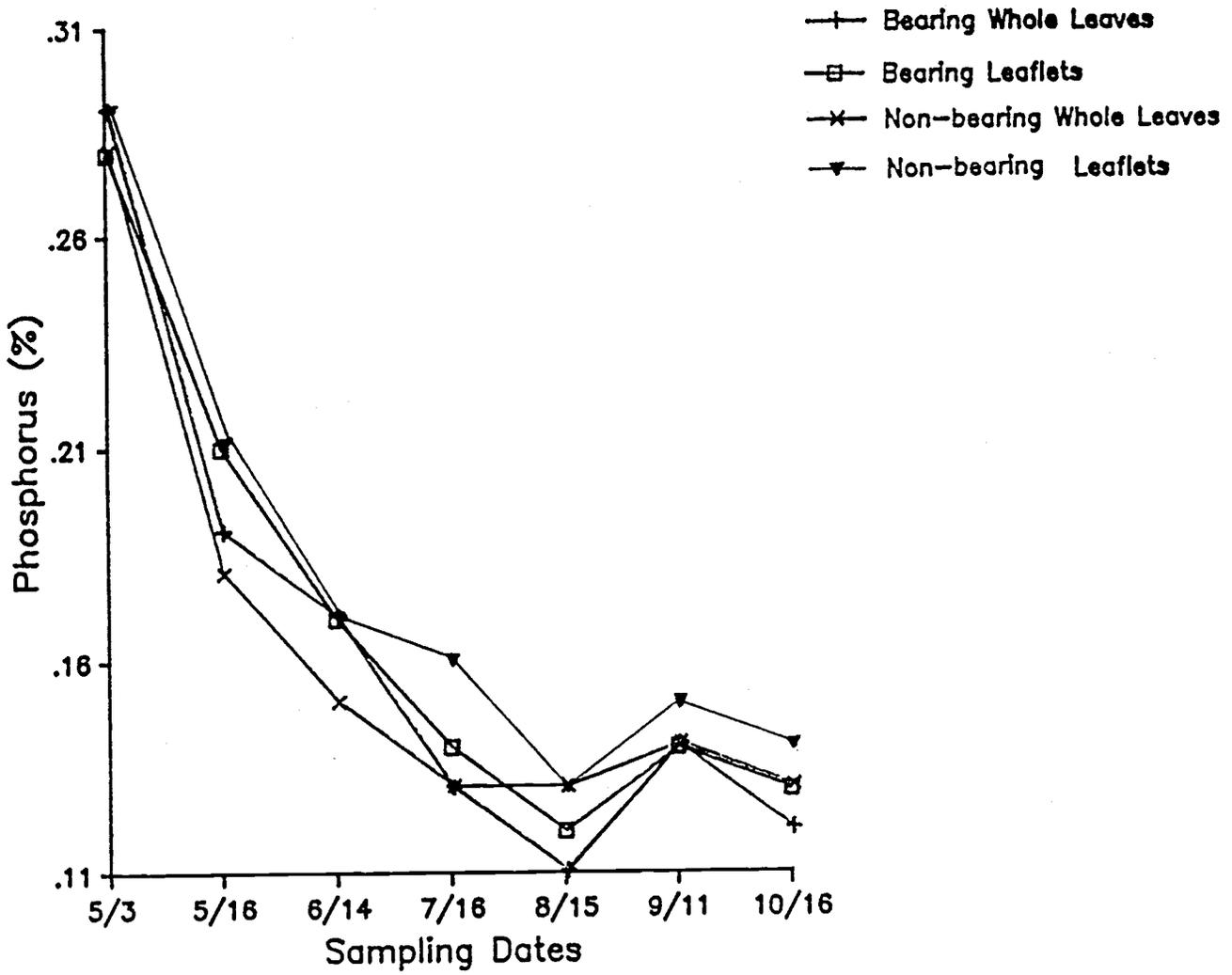


Figure 2. Phosphorus composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.

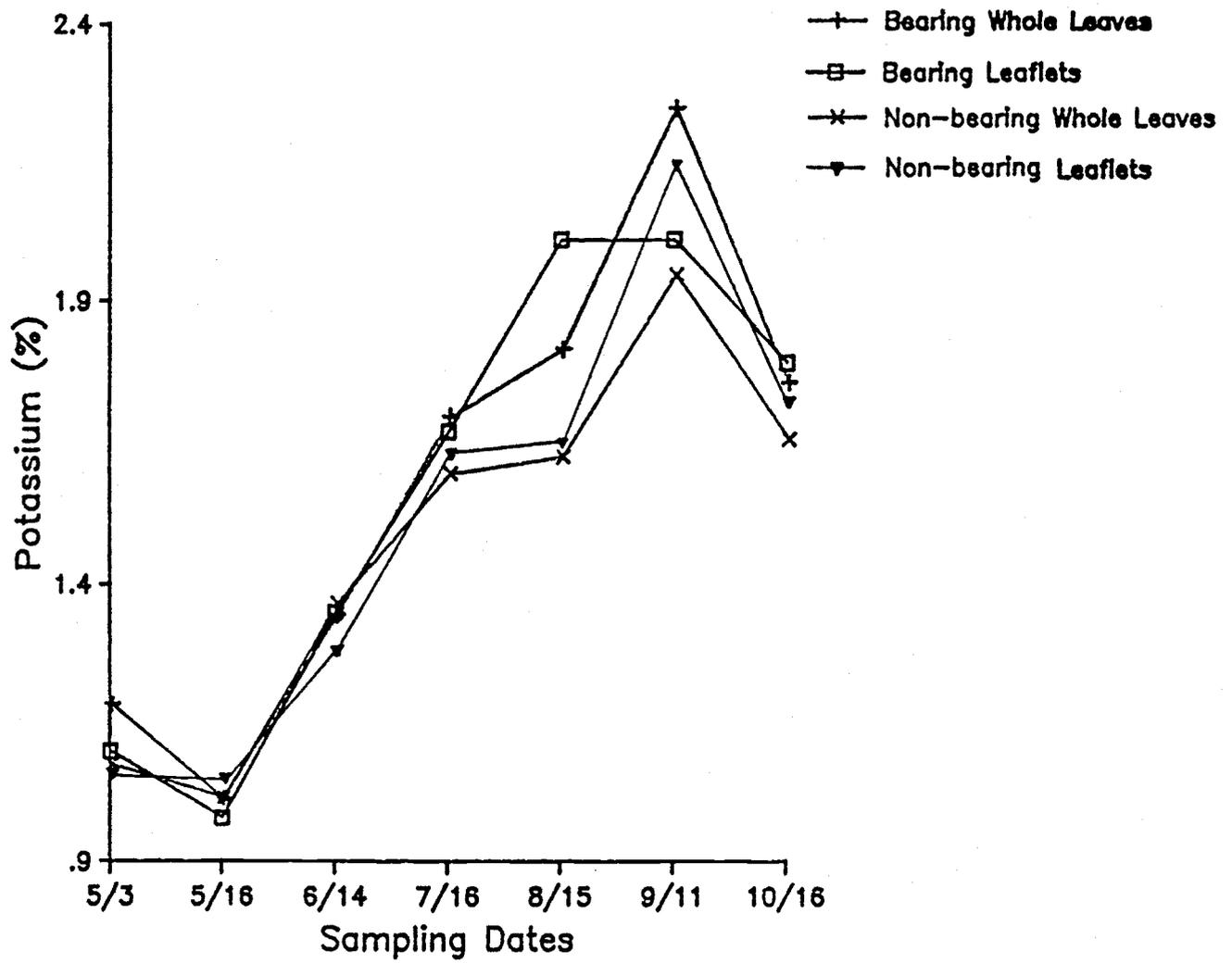


Figure 3. Potassium composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.

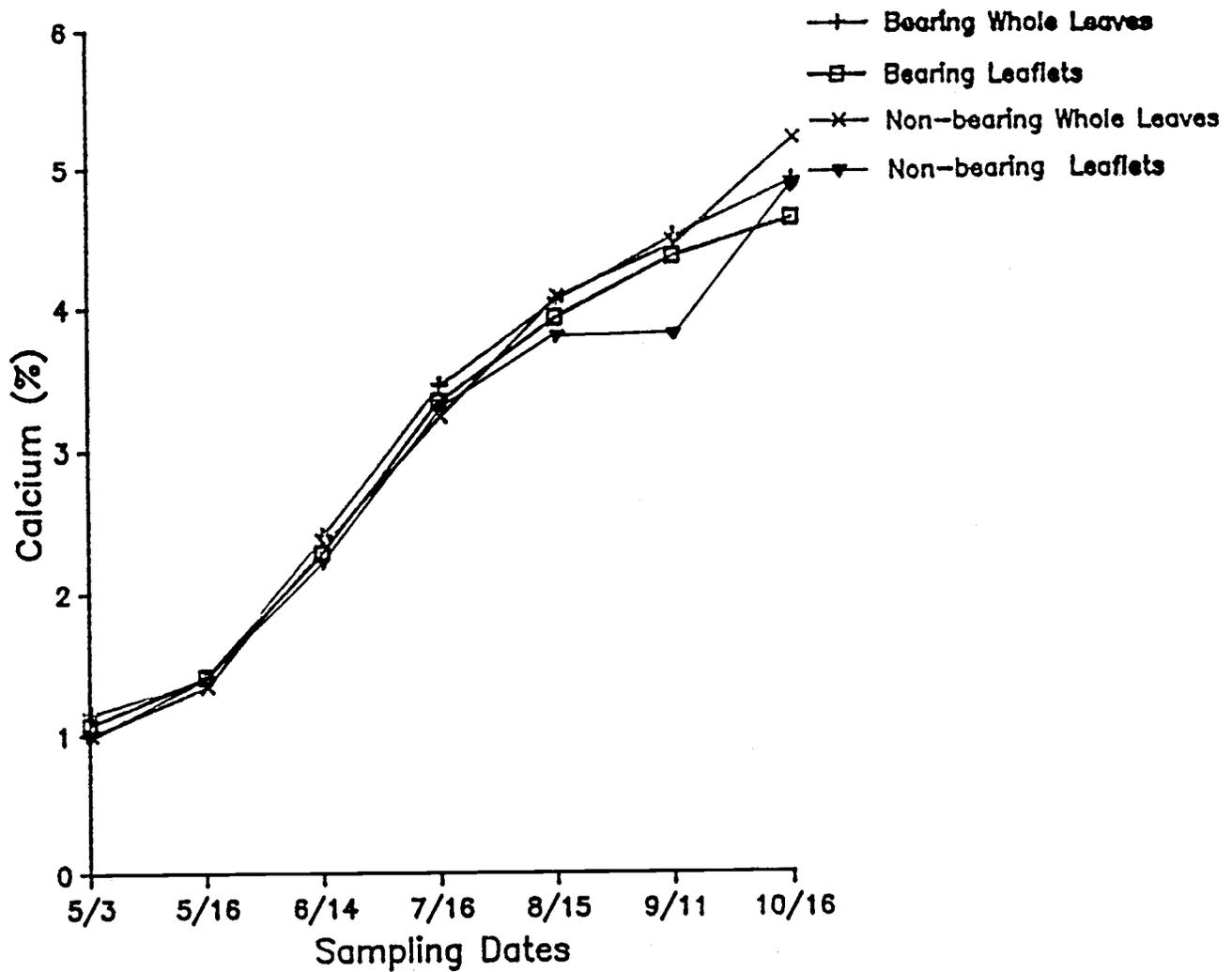


Figure 4. Calcium composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.

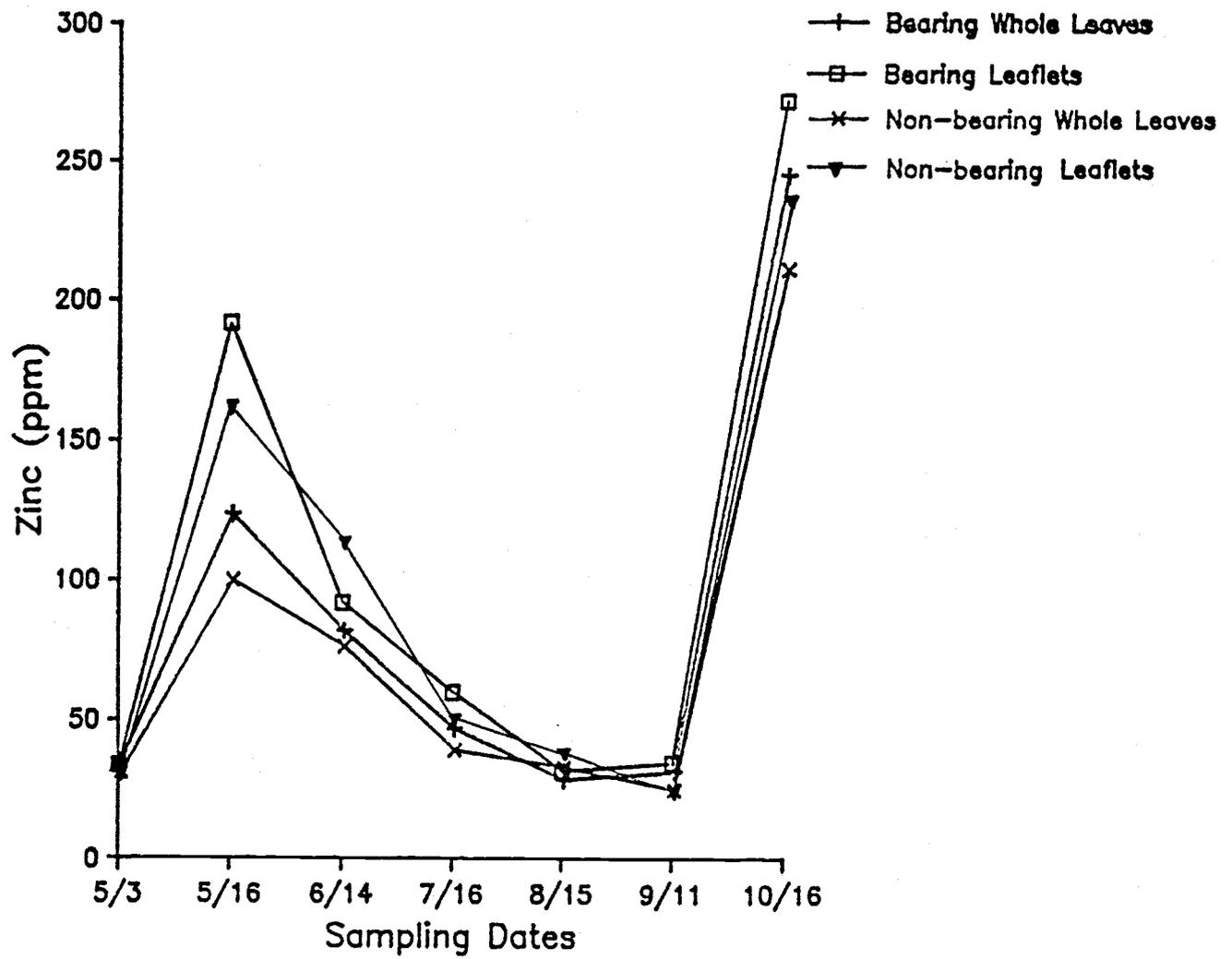


Figure 5. Zinc composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.

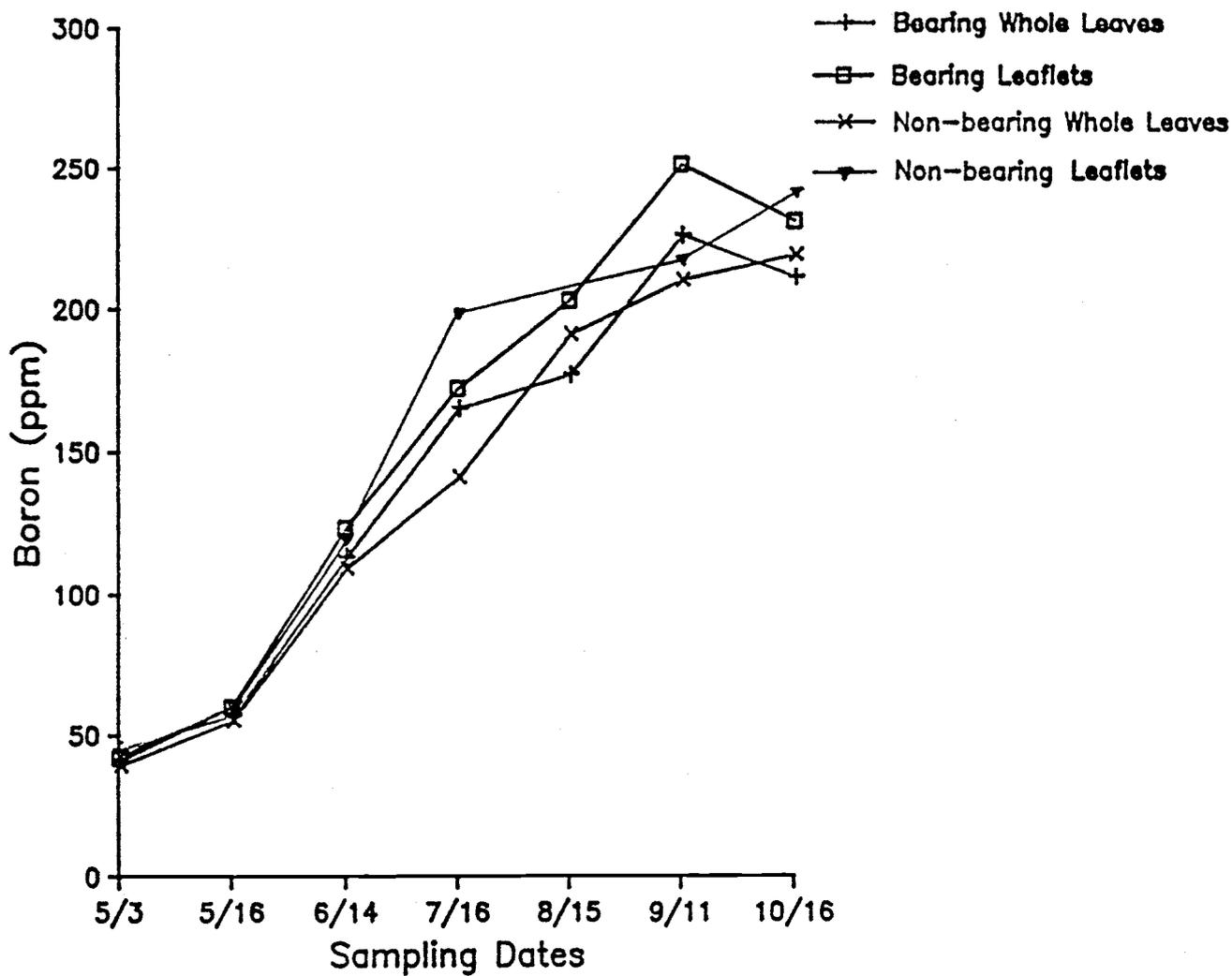


Figure 6. Boron composition of pistachio leaves and leaflets from bearing and non-bearing shoots at various sampling dates during the growing season.