

Evaluation of the productive and quality performance of different strawberry (*Fragaria x ananassa*) varieties grown in Santiago del Estero, Argentina

Ruiz, S.¹, Gutiérrez, D.^{2,3}, Gramajo Dominguez, Y.¹, Benites, F.², Rodríguez, S. del C.^{2,3}

¹Instituto Nacional de Tecnología Agropecuaria, Estación Experimental Agropecuaria Santiago del Estero (INTA-EEASE); ²Instituto de Ciencia y Tecnología de los Alimentos. Facultad de Agronomía y Agroindustrias, Universidad Nacional de Santiago del Estero (UNSE). ³CIBAAL CONICET-UNSE, Villa El Zanjón, Santiago del Estero-Argentina.

INTRODUCTION & AIM

Fragaria x ananassa, commonly known as strawberry, is a crop that adapts to different climates and soils. World strawberry production in 2023 was 10 million tons, of which Argentina had a production of 46,186 tons with a yield of 30,015 kg ha⁻¹. This production is concentrated in Santa Fé, Tucumán and Buenos Aires provinces, and with lesser production in Córdoba and Entre Ríos. In Santiago del Estero, strawberry production is not developed, however, it is an area that has the appropriate soil and climate characteristics for strawberry production. The objective of this work was to evaluate the agronomic performance and quality of different strawberry varieties produced in Santiago del Estero, Argentina.

METHOD

The following varieties were evaluated in 2023 and 2024 under semi-forced cultivation and bioinputs. The varieties Rociera (RO), Frontera (FR), Sahara (SH), Savana (SV), and Sabrina (SB) were used. Thirty strawberries of each variety were randomly harvested, with 70% red coloration.

The crop performance was evaluated by:

- Yield production (kg ha⁻¹)

The fruit quality was determined by:

- Titratable acidity (TA): expressed in mg 100 g citric acid⁻¹.
- Soluble solids (Ss) by refractometry and expressed as a percentage.
- Firmness (with texturometer) expressed in force grams (gf).
- Instrumental color (using a colorimeter), determining L* (luminosity), a* (red-green color), and b* (blue-yellow color).

All determinations were performed in triplicate.



CONCLUSION

With the results obtained, we can indicate that the evaluated varieties had good productive performance, especially the FR and RO varieties, through viable production yields, evidencing the potential of this crop as an intensive production alternative for agricultural diversification in the region, and for Santiago del Estero, Argentina, where this crop is not yet commercially exploited.

RESULTS & DISCUSSION

The productive performance in two years production indicated a high yield production in FR (47.150 kg ha⁻¹), followed by RO (40.749 kg ha⁻¹).

With respect to the fruit quality, the TA and Ss are shown in Figure 1 and 2, respectively.

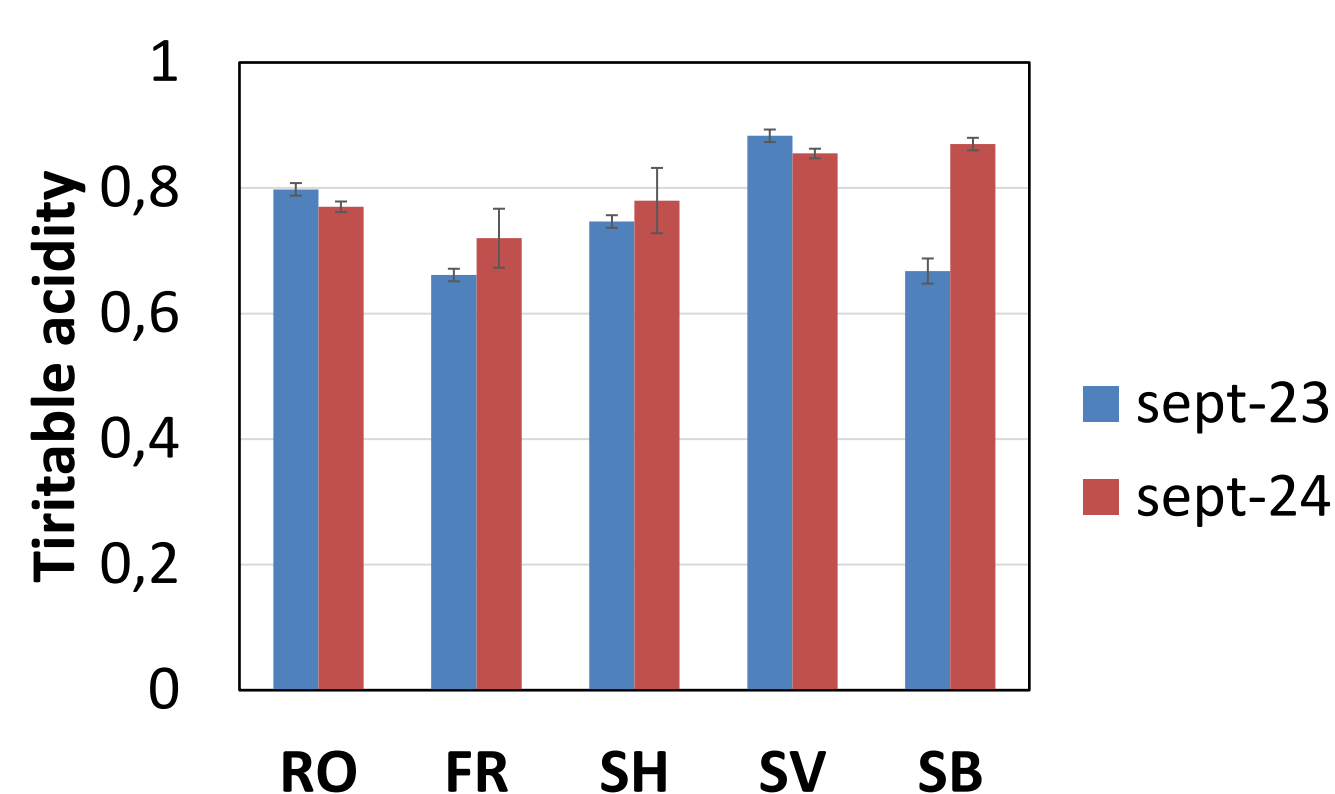


Fig. 1: Titratable acidity of different strawberry varieties produced during 2023 and 2024 campaigns.

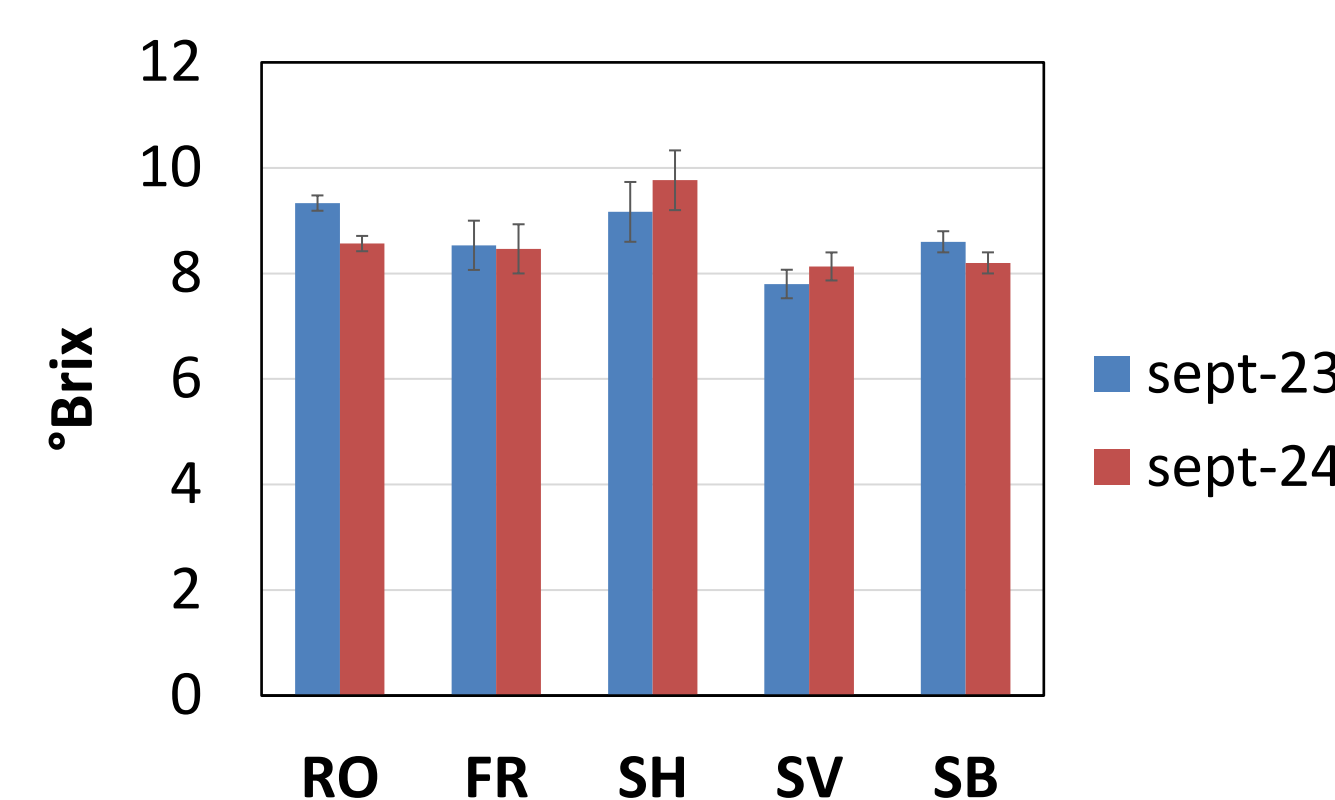


Fig. 2: soluble solid of different strawberry varieties produced during 2023 and 2024 campaigns.

The results indicated that the TA ranged from 0.66% to 0.88%, depending on the variety, with SV having the highest TA in both sets (0.87%). As for SS, all varieties presented values above the minimum acceptable (>7%) in both seasons. The highest values were recorded for the varieties 9.33% (RO) and 9.16% (SH) in 2023 and 8.1% (SV) and 9.77% (SH) in 2024.

The firmness strawberries evaluated showed that FR variety presented higher firmness values in both seasons, while SH varied between 1.18 and 1.54 gf in 2023 and 2024, respectively.

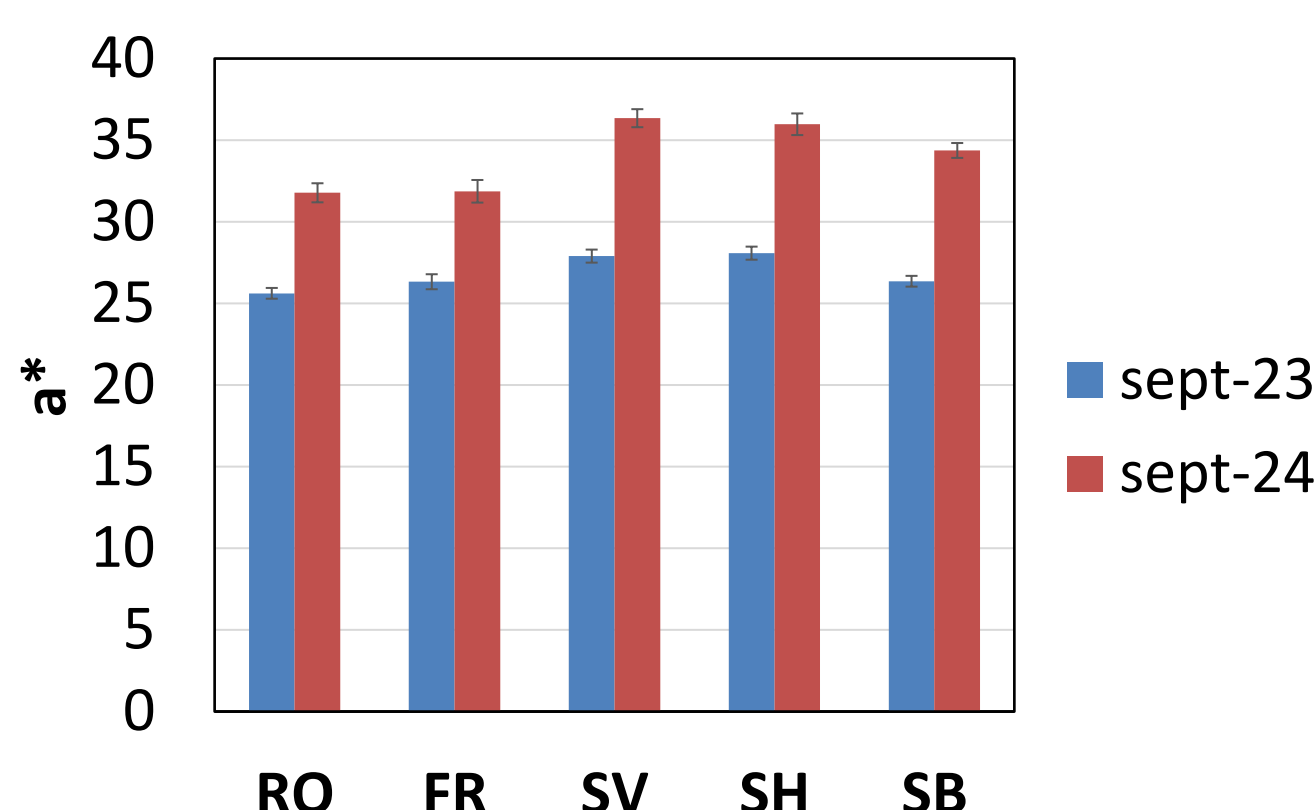


Fig. 3: soluble solid of different strawberry varieties produced during 2023 and 2024 campaigns.

Regarding color, the L* of fruit harvested in 2023 was higher than in 2024 for all varieties, while a* values were higher in 2024 than in 2023.