PREDICTIVE MODELING OF POSTHARVEST AVOCADO QUALITY (VAR. HASS): PRELIMINARY RESULTS

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Problem

- Variability of fruit on arrival

- Increased export volumes

Nº DE DÍAS DE COSECHA A CONSUMO

DIAS	USA	EUROPA	JAPON
Cosecha	1	1	1
Packing	5	5	5
Viaje	15	25	30
Guarda Destino a Venta	5-20	5-10	5-10
Cosecha a Supermercado	25-40	35-45	40-50
Durabilidad en el Hogar	2-5	2-3	2-4
Duración necesaria desde Cosecha hasta Consumo	**27- 45**	**37- 48**	**42-54**

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- Potential deterioration of the fruit, post - harvest is generated in pre-harvest

- The deterioration of the fruit after harvest is a multifactorial problem

- MAIN CAUSE
  Soil variability - climate - management

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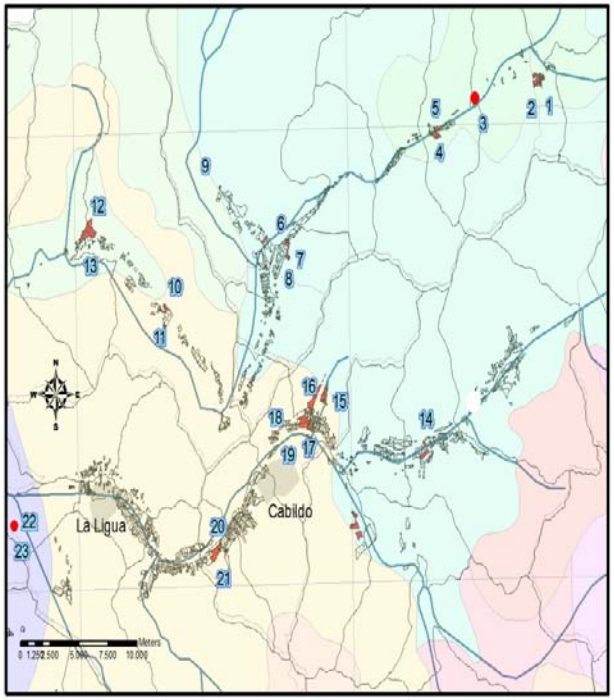
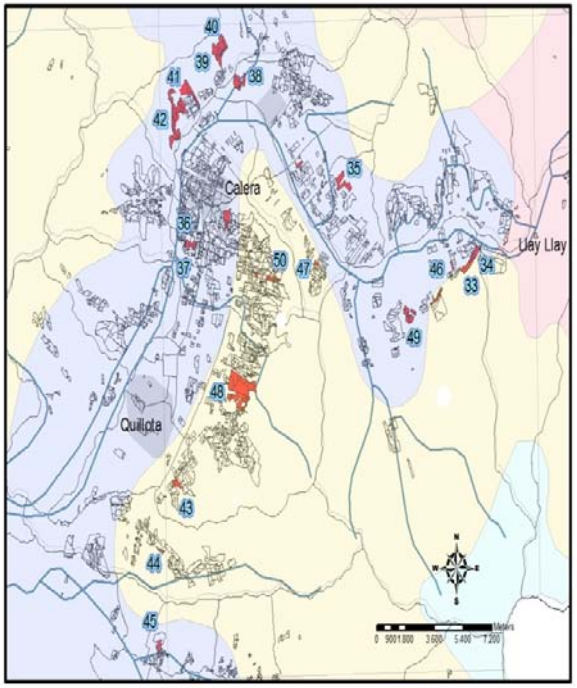
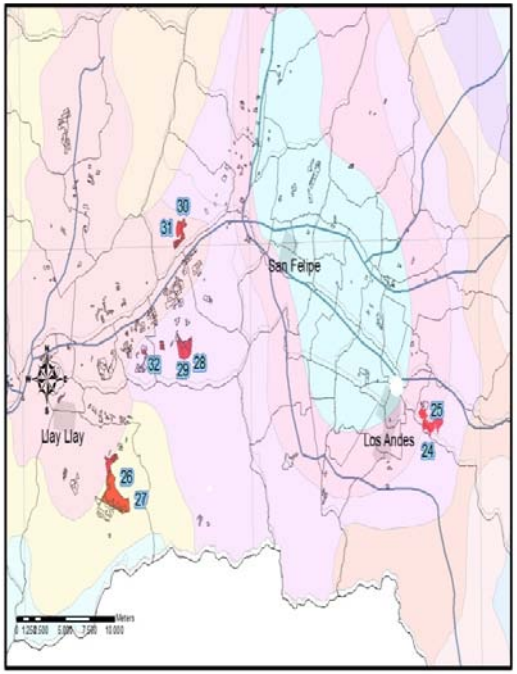
- **1. Experimental Sites**



1. Petorca and La Ligua Valleys



2. Aconcagua Valley (bottom part)



3. Aconcagua Valley (upper part)

We selected 42 experimental sites grown under different conditions in terms of climate, topography and soil. The selection and location of each site was performed through Geographic Information System (GIS

2. Preharvest measurement

Each site was fully characterized, including nutrient content (Fe, Ca, Zn, B, N, K) in the fruit and the leaf, vigor, leaf chlorophyll content, potential evapotranspiration, temperature, water stress level, orchard height, among others

3 Postharvest

Fruit from all sites was harvested, based on oil content, and then stored at 5°C for 25, 35 and 45 days. After storage fruit was exposed at 20°C (shelf-life) until they reached a ready to eat stage (firmness close to 2-3 lbf). Quality parameters were evaluated, including fruit firmness, external color and physiological disorders.

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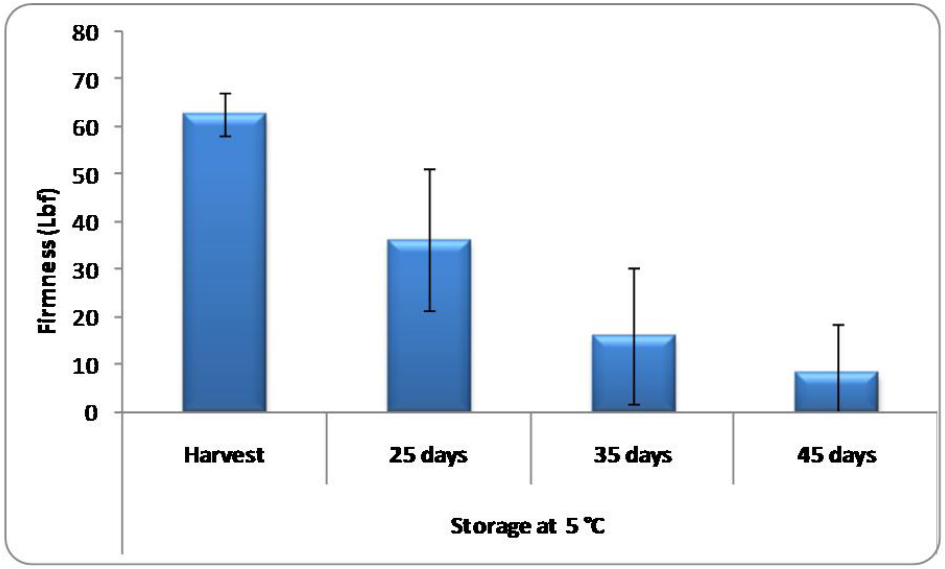
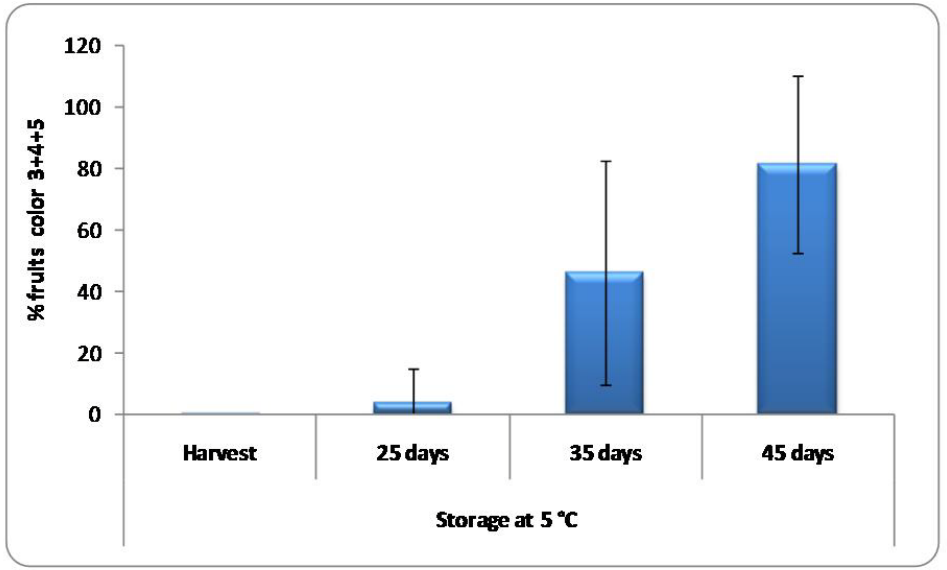
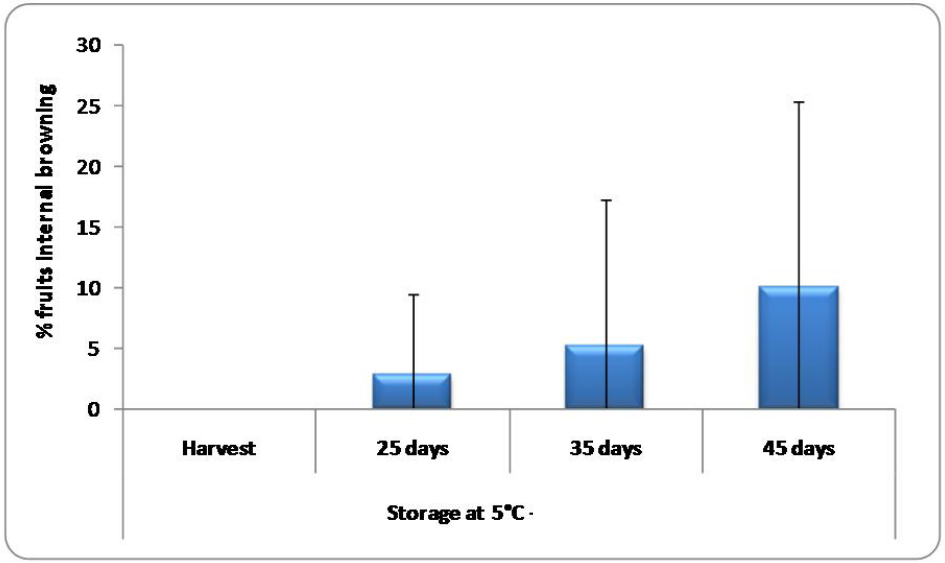
RESULTS







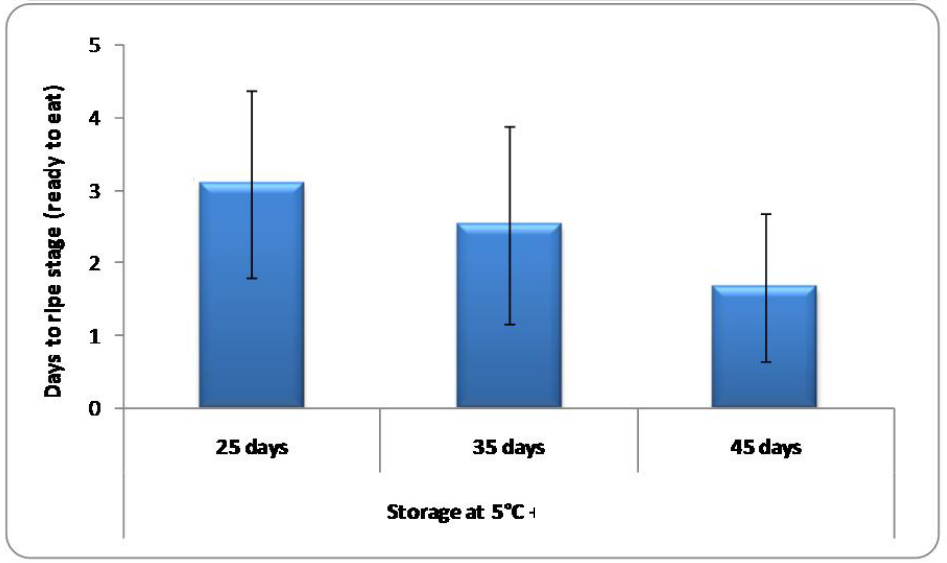


Figure 1. Quality parameters measured in 42 experimental sites. Data are means ± S.D.

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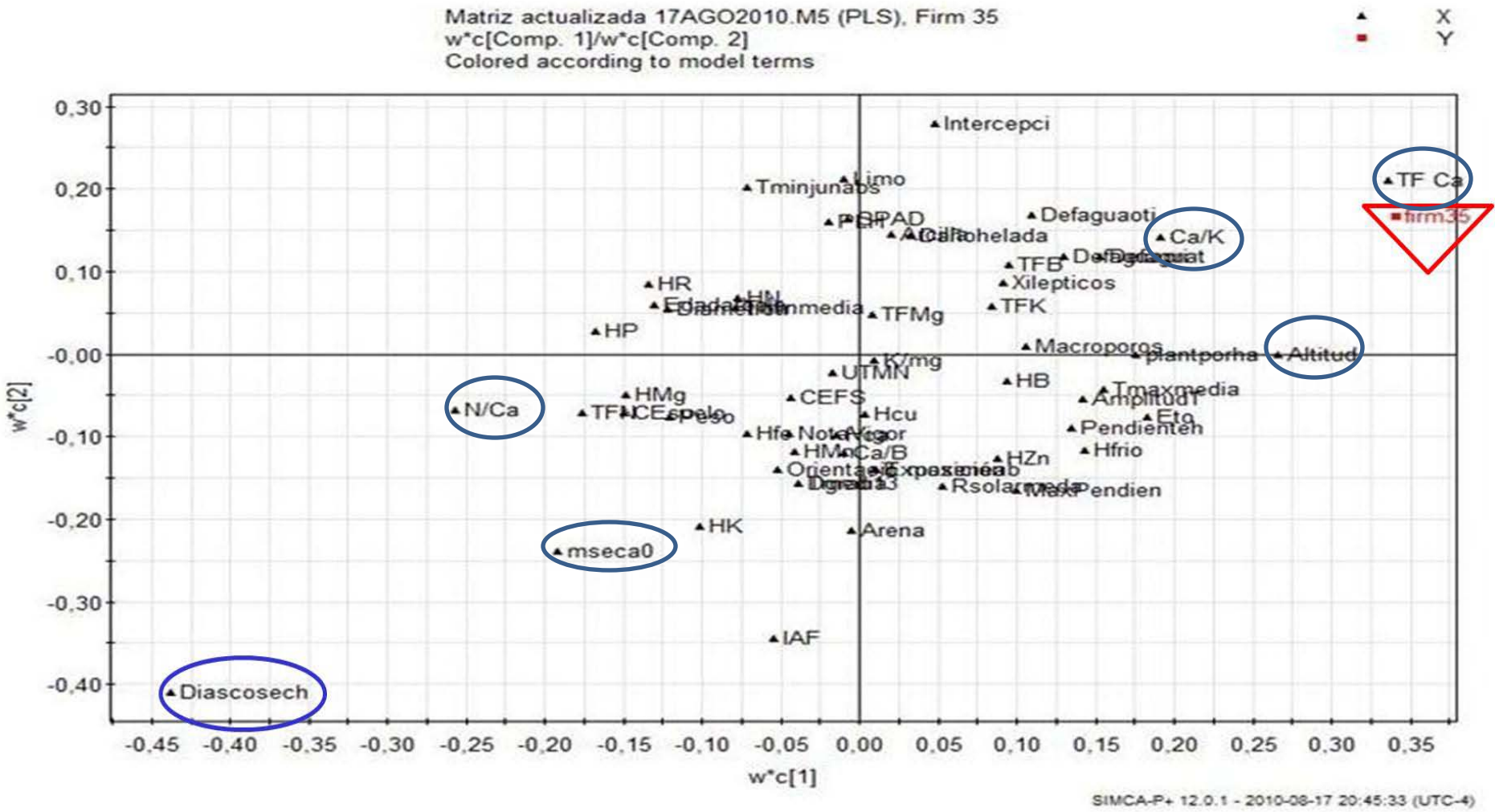

Multivariate Analysis and NIPALS Algorith-based methods were performed (PCA and PLS).

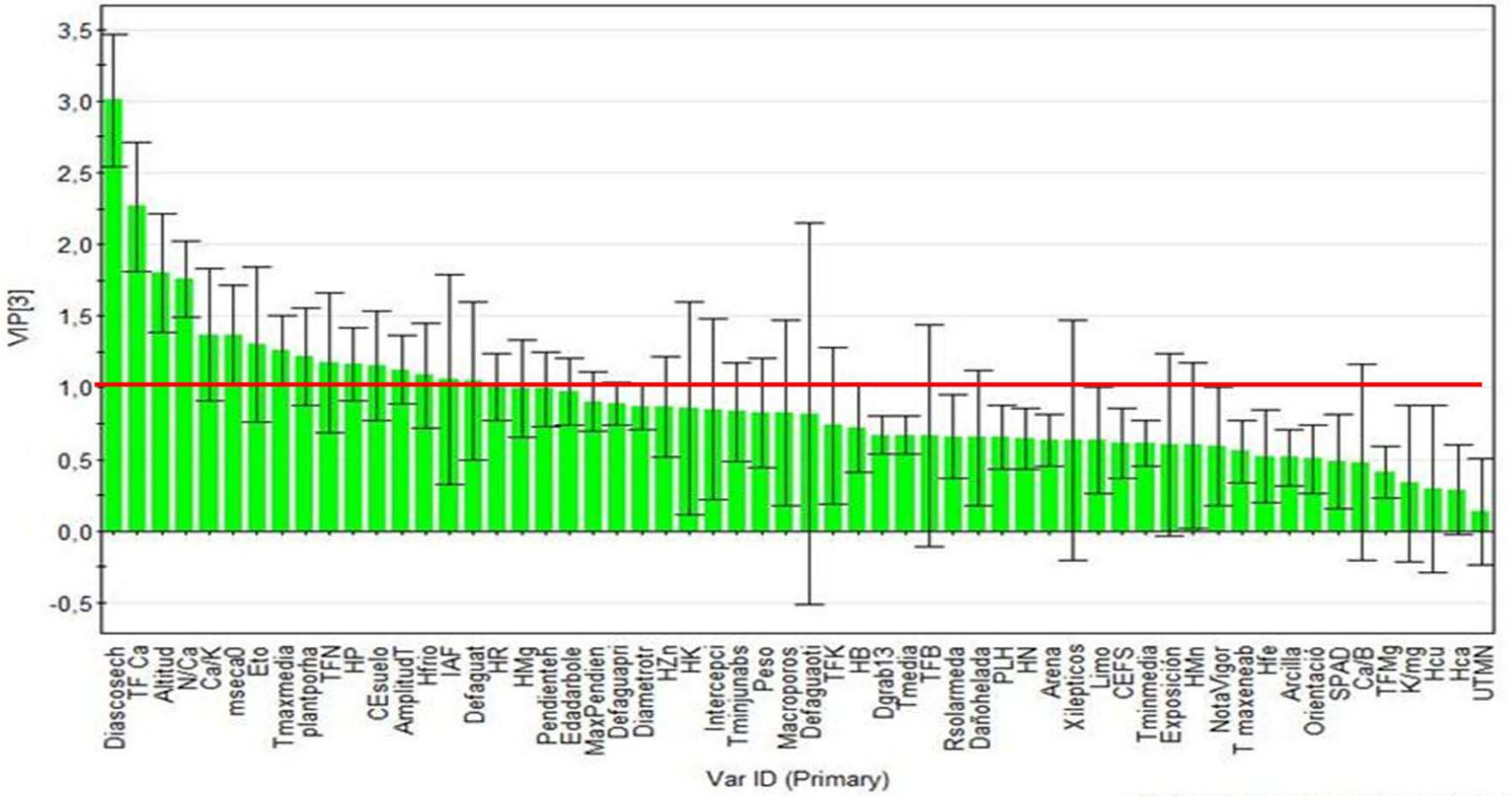

Figure 3. Significance (VIP) of the variables that affect fruit firmness after 35 days at 5 °C.

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Collaborators:

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