

## **A LETTER REGARDING AVOCADO CULTURE IN PARAGUAY**

*(Directed to San Diego County Farm Advisor, C. D. Gustafson by Desiderio M. Segovia\*)*

*Calle Estados Unidos y Parque Caballero Asunción, Paraguay, South America*

Dr. Don Gustafson.

Dear Sir:

I have had the pleasure to be present at the Avocado Growers' Assembly at Fallbrook, sponsored with great success by the University of California and under your direction.

As I told you before, my purpose in visiting California was to investigate avocado production and marketing. I have had some experience in avocado growing on a small scale in Paraguay: just a few trees planted on non irrigated land, which grew well and yielded abundant fruit.

I was satisfied with what I have heard at the Growers' assembly room about acreage planted, production, price trends, disease control, water supply and behavior of varieties in different localities of California.

The majority of the growers were interested in price trends, specially at the actual retail peak price of thirty-two cents per avocado fruit.

I would like to give a brief information about the country where I intend to plant avocado on a commercial scale and perhaps some members of the Association would like to enjoy the mild subtropical climate of Paraguay and exploit the virgin avocado culture there for the many advantages to be found there for avocado production and marketing.

### **The Country**

Paraguay has 244,051.2 square miles. It is a land located in the central part of South America, bounded by Brazil, Argentina and Bolivia. It has no sea coast, but two great confluent and navigable rivers put her in contact with the large cities of Buenos Aires, Rosario, Parana, Montevideo and the Atlantic ocean for export and general commercial activities.

### **Physiography**

The Paraguay River, running from north to south divides the country into two regions. The Western portion is a great plain of saline land used for cattle raising; some areas are covered by forest, and timber is exploited there besides the extraction of tannin and sandal oil from the quebracho and palosanto trees respectively.

The Eastern region is a rolling land consisting of a chain of low mountains and long forested hills called *montes*, separated by wide valleys. The *monte* lands are used for agriculture and the valleys for pasture.

## **Hydrography**

The country is well irrigated. The Paraguay River has eleven effluents and the Paraná three. Besides these effluents there are numerous permanent brooks and some lakes that can be used for irrigation.

## **Soils**

There are several types of agricultural soils. The black, low, wet, clay basin soils, well-drained and plowed is used for rice culture. The higher open valley soils are used in some places for agriculture, but in most cases for pasture. The residual, deep, sandy-clay and sandy-loam, permeable, covered by a thick layer of humus and organic matter are very fertile soils of the monte lands are used for crop and orchard tree production.

## **Climate**

Paraguay has a tropical and sub-tropical climates. It differs from other tropical countries because of the lack of dry and rainy seasons. It has rainfall in every month of the year. In many areas the temperature doesn't get lower than 36 degrees F. (It never freezes). The highest temperature reaches 106.5 degrees.

## **Meteorological Records**

The Ministry of Defense in Paraguay made observations of rainfall and temperature in four zones of the country from the year 1940 to 1960. These zones are:

Asunción	(Central West)
Villarrica	(Central East)
Pilar	(South West)
Encarnación	(South East)

These records are presented in tables I and II. Table I shows the monthly rainfall over the entire subtropical area of the country and different quantity of rainfall, and different degree of temperature between each zone is shown in Table II.

### *Avocado Production*

Paraguay offers the following advantages for avocado production:

1—Market. Asunción, with 300,000 inhabitants; Rosario—600,000; Paraná—400,000; Buenos Aires—6,500,000; and Montevideo—1,000,000. Avocado is popular but there is

lack of supply of this fruit.

2—Fertile soils.

3—Adequate climate.

4—Water for irrigation if needed.

5—Rainfall every month of the year.

6—Low price of land (from 60 to 80 dollars per acre).

7—Abundant laborers and low cost of labor (minimum salary is 1.92 dollars a day).

8—No disease as yet is reported that attack avocado root, leaves or fruit.

9—Avocados can be produced the year round.

10—There is a freezing plant in Asunción if needed.

11—There is promotion credit for avocado planting in commercial scale.

12—There are paved roads and bus service, railway, steamship and airplanes for transportation facilities.

Table I

SUBTROPICAL REGION OF PARAGUAY  
Rainfall

	July	August	September	October	November	December	January	February	March	April	May	June	Total
Asuncion	2.15"	1.2"	3.5"	5.85"	5.15"	4.85"	6.8"	5.5"	6.4"	5.6"	5.25"	3.5"	— 55.75"
Pilar	1.6"	1.6"	3.2"	5.8"	5.6"	4.65"	5.75"	5.15"	6.6"	6.05"	4.2"	3.5"	— 53.70"
Villarrica	3.5"	2.4"	4.4"	8"	9.3"	5.25"	6.25"	4.85"	6.15"	6.1"	5.45"	4.45"	— 66.10"
Encarnacion	4.5"	3.1"	5.85"	8.3"	5.48"	4.9"	5.4"	7.4"	6.25"	6.8"	6.6"	6.25"	— 70.83"

This table shows the monthly rainfall over the entire subtropical eastern area and quantity falling in each zone.

Table II

## EASTERN SUBTROPICAL REGION OF PARAGUAY

		Temperature													
		July	August	September	October	November	December	January	February	March	April	May	June	TOTAL	
Asuncion	High	90.0°F.	100.0°F.	102.5°F.	102.5°F.	103.0°F.	106.0°F.	106.5°F.	104.5°F.	103.0°F.	95.6°F.	91.4°F.	90.0°F.	—	106.5°F. High
	Low	36.0°F.	36.0°F.	38.0°F.	48.2°F.	53.0°F.	55.5°F.	58.0°F.	57.2°F.	52.4°F.	43.2°F.	37.8°F.	36.7°F.	—	36.0°F. Low
Pilar	High	88.5°F.	87.0°F.	102.5°F.	104.6°F.	101.0°F.	108.0°F.	104.6°F.	104.5°F.	106.2°F.	98.8°F.	93.2°F.	90.5°F.	—	108.4°F.
	Low	31.7°F.	39.3°F.	37.4°F.	37.4°F.	46.0°F.	50.8°F.	51.8°F.	55.5°F.	55.7°F.	44.8°F.	38.0°F.	28.0°F.	—	36.0°F.
Villarrica	High	86.4°F.	97.2°F.	100.4°F.	102.2°F.	101.0°F.	106.4°F.	106.5°F.	105.5°F.	101.0°F.	95.0°F.	90.5°F.	86.5°F.	—	106.5°F.
	Low	26.6°F.	29.0°F.	33.8°F.	41.4°F.	41.3°F.	35.6°F.	68.0°F.	50.8°F.	43.5°F.	37.4°F.	28.4°F.	37.4°F.	—	26.6°F.
Encarnacion	High	80.6°F.	84.5°F.	89.6°F.	97.5°F.	100.7°F.	105.8°F.	104.0°F.	103.8°F.	102.2°F.	94.5°F.	90.2°F.	86.6°F.	—	105.8°F.
	Low	23.0°F.	24.8°F.	39.5°F.	29.2°F.	41.6°F.	41.6°F.	45.5°F.	45.5°F.	44.6°F.	32.8°F.	28.4°F.	21.2°F.	—	21.2°F.

This table shows the different degrees of temperatures observed in each zone. In the area of Asuncion the temperature never goes below 36°F. and above 106.5°F.; in the area of Encarnacion the lowest observed as 21.2°F. and the highest 105.8°F. Averages not included — only highest and lowest temperature in twenty years.