California Avocado Society 1982 Yearbook 66: 63-65

Avocado Taste Test — A Preliminary Study of Regional Differences

S. K. Lee and C. W. Coggins, Jr.
Postgraduate Research Plant Physiologist and Professor of Plant Physiology, Department of Botany and Plant Sciences, University of California, Riverside, respectively.

Because avocados are produced in California, Florida, and Texas, consumers in these states are more familiar with the taste and texture of avocados than consumers in other states. In order to obtain information of value in marketing, untrained consumer avocado taste panels were organized in Riverside, California, Urbana-Champagne, Illinois, and in Fayetteville, Arkansas. Also, a trained panel was set up at the University of California, Riverside, for comparison. Members of the trained panel were selected for their abilities to discern minimum levels of saltiness, bitterness, sweetness, and acidity, as well as the ability to routinely identify the odd sample in a series of sets of three, consisting of two similar and one dissimilar slice of avocado tissue.

Materials and Methods

Every week, beginning in late September, two sources of *Zutano* fruit (Fallbrook and Porterville, California) and one source of *Lula* fruit (Goulds, Florida) were picked and then shipped by Federal Express to each of the tasting locations. When the fruit ripened, they were tasted by the panelists. Each panel was composed of 20 people who consistently participated in each tasting session throughout the season. The identity of the avocados was never given, and the order in which they were served varied each time. Vertical grading forms (Fig. 1) were used by all panels. The dates of minimally acceptable taste (taste 7) were compared with the results of oil analysis by standard Soxhlet extraction on separate sub-sample groups (2).

Results and Discussion

Consumer panel results Eire summarized in Table 1. *Zutano* fruit from Porterville reached acceptable taste earlier than fruit from Fallbrook. Consumer panels in Arkansas and Illinois accepted *Zutano* fruit from Fallbrook 2 weeks earlier than the California panels. Dates of acceptable taste for *Zutano* fruit from Porterville were close for all panels. In all cases, the percentages of oil at acceptable taste for *Zutano* fruit were 8.5% and higher.

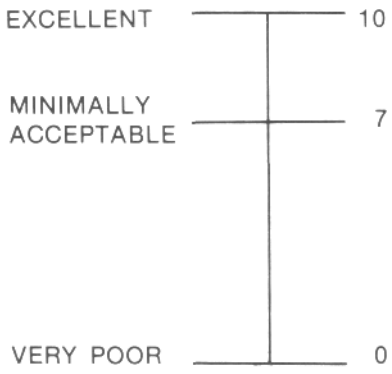

Fig. 1. *Vertical grading form used by consumer panels.*

Table 1. Taste Panel Results for *Zutano* and *Lula* Fruit.

Panel	*Zutano* from Porterville		*Zutano* from Fallbrook		*Lula* from Goulds	
	Date of Taste 7[z]	% Oil at Taste 7	Date of Taste 7	% Oil at Taste 7	Date of Taste 7	% Oil at Taste 7
Arkansas	Oct. 13	9.4	Oct. 26	8.5	Oct. 19	4.8
Illinois	Oct. 19	10.3	Oct. 26	8.5	Oct. 19	4.8
California (Consumer)	Oct. 13	9.4	Nov. 10	9.5	Nov. 9	6.4
California (Trained)	Oct. 12	9.3	Nov. 10	9.5	Nov. 24	7.5

[z] Taste 7 represents minimum acceptable taste.

The maturity date of *Lula* fruit from Florida cannot be directly compared with the dates of *Zutano* fruit from California because the climates are quite different and, furthermore, *Lula* and *Zutano* differ substantially in texture and taste. *Lula* originated from the Guatemalan race and is one of the major cultivars grown in Florida (approx. 30% of total production) (1). The fruit is large (300-550 g), with a smooth, glossy, and light green skin. The mesocarp shows a greenish yellow color (4). *Zutano* fruit is a medium size (200-400 g) Mexican seedling. The skin is shiny yellowish green, and the flesh is greenish white (3).

The shipping schedule of avocado fruit in Florida depends on assigned picking dates based on minimum fruit weight and diam. The schedules for *Lula* fruit determined by the Florida Avocado Administrative Committee for 1981-82 were October 12 (min. wt.: 18 oz., min. diam.: 3-11/16"), October 26 (min. wt.: 14 oz., min. diam.: 3-6/16"), November 9 (min. wt.: 12 oz., min. diam.: 3-3/16"), and November 23 with no restrictions on weight

or size. The California panel indicated mature taste dates for *Lula* fruit that were much later than those of the Arkansas and Illinois panels. This difference probably indicates that California panel members have a more discriminating palate for avocados than the Illinois and Arkansas panel members. This may be due, in part, to Californians being more accustomed to a nutty avocado flavor and avocados with a higher oil content. *Lula* avocados never attained 8% oil during our testing period.

In summary, less mature fruit were acceptable to Illinois and Arkansas panels. Untrained California panels were more discriminating than Illinois and Arkansas panels, and the trained panel was more discriminating than any of the untrained panels. This raises the question as to what type of panel should be used in marketing research. Certainly, if the objective is to determine minimum acceptable quality in a relatively new marketing area, results from untrained panels in the new area would be appropriate. However, it is likely that consumers in the new area will become more discriminating in time. Thus, we propose that avocado taste test marketing data should be obtained from areas in which consumers are already familiar with avocados. For marketing standards, untrained panels are probably satisfactory. In cases where more precise evaluations are needed (variety testing, for example), trained panels should be used.

Acknowledgements

Special thanks go to the members of the Horticultural Food Science Department, University of Arkansas, Fayetteville, and to the members of the Horticultural Club, University of Illinois, Urbana-Champagne, for setting up consumer panels. Thanks are also due to the financial support of the California Avocado Commission.

Literature Cited

1. Hatton, T. T. Jr., P. L. Harding, and W. F. Reeder. 1964. Seasonal changes in Florida avocados. U.S.D.A. Tech. Bull. 1310: 1-47.
2. Lee, S. K., R. E. Young, P. M. Schiffman, and C. W. Coggins, Jr. 1983. Maturity studies of avocado fruit based on picking dates and dry weight. J. Amer. Soc. Hort. Sci. (in press).
3. Platt, R. G. 1974-75. Climatic zones of avocado maturity in California. Calif. Avocado Soc. Yearbook 58: 49-53.
4. Ruehle, G. D. 1958. The Florida avocado industry. Florida Agric. Exp. Sta. Bull. 602: 1-102.