Arizona Citrus Acreage

Approaching 50,000!

*by Roger W. Fox & James F. Riggs**

Figures recently released by the Arizona Crop and Livestock Reporting Service indicate that the total citrus acreage in Arizona on January 1, 1969 was 49,800 (Table 1). This estimate, along with the other figures in Tables 1 and 2, resulted from a survey of all citrus areas in the State conducted during November and December of 1968. The estimates were based on aerial photographs, a ground survey, and a complete enumeration of 200 randomly selected 40-acre tracts. Consequently, the results of this survey represent the best estimates of Arizona citrus acreage and tree numbers by county, type of citrus, and age currently available. Furthermore, the Crop and Livestock Reporting Service plans to enumerate additional tracts of citrus during this fall and in subsequent years in order to improve the accuracy and to update the estimates.

This article focuses on the acreage figures. Estimates of tree numbers and a more detailed breakdown on tree ages can be obtained from the Arizona Crop and Livestock Reporting Service, 6445 Federal Building, Phoenix, Arizona, 85025.

State Totals

Valencia oranges and lemons dominate the State citrus picture; together they represent 31,000 acres or 62 percent of the total citrus acreage in Arizona (Table 1). Grapefruit is declining in relative importance, falling from 50 percent of the total acreage in 1949 to 20 percent in 1962 and to 13 percent currently.[1] Low grapefruit prices during the late forties and fifties were largely responsible for the shift out of grapefruit. During the sixties, grapefruit acreage seems to have stabilized at about 6,700 acres. Acreage of the tangerine-type citrus fruits (tangelos, mandarins, and tangerines) has expanded rapidly in recent years, increasing from 1,317 acres in 1962 to 6,360 acres in January of 1969. In total, Arizona citrus acreage has expanded by about 17,500 acres since 1962.

Yuma County

The expansion of citrus acreage in Yuma County is clearly documented by the new estimates. The 31,100 acres of citrus reported for Yuma County represent 62 percent of the total citrus acreage in Arizona (Table 1). Twenty years ago (1949), Yuma County had only 1,735 acres of citrus out of a total State acreage of 20,283. As recently as 1962, citrus acreage in Yuma County was reported at 17,567, nearly 13,500 acres less than the January 1969 estimate. The majority of the new planting in Yuma County has been in the Wellton-Mohawk area where large groves have been established on recently developed desert land.

Valencia oranges and lemons account for 41 and 38 percent, respectively, of the citrus acreage in Yuma County. Lemon acreage has increased very rapidly, *doubling* since 1962. On the other hand, grapefruit acreage (white plus red) in Yuma County has declined slightly in recent years; the 1969 estimate is approximately 200 acres less than in 1962. Acreage of the tangerine-type citrus fruits, while still a small portion of the Yuma County citrus area (12 percent), has increased rapidly from 640 acres in 1962 to 3,860 acres in 1969.

Maricopa County

It is noteworthy that total citrus acreage in Maricopa County in 1969 is almost identical (503 acres less) to what it was twenty years ago. This does not mean that the industry is stagnant, far from it. Considerable change in the location of groves and in the type of citrus grown has occurred as a result of residential subdivision, new plantings, and the topworking of mature groves.

One of the major changes has been the declining importance of grapefruit and the increasing absolute and relative position of the tangerine-types, lemons and Valencia oranges. Grapefruit's share of the total Maricopa County citrus acreage declined from 49 percent in 1949 to 26 percent in 1969. During the same interval, the tangerine-types increased their share from one percent of the total (234 acres) to 14 percent (2,490 acres). The decline in grapefruit acreage occurred entirely during the late forties and fifties, whereas the major increase in the tangerine-types occurred during the sixties (from 677 acres in 1962 to 2,490 acres in 1969). The acreage of lemons and Valencia oranges has increased rather steadily throughout the past twenty years.

The locational changes in citrus production in Maricopa County have largely been in reaction to the rapid urbanization of the Phoenix metropolitan area. As groves in Phoenix, Mesa, and Tempe were phased out of production, new groves were established in Chandler Heights and to the west and northwest of Phoenix. More recently, a number of groves have been developed in the Queen Creek

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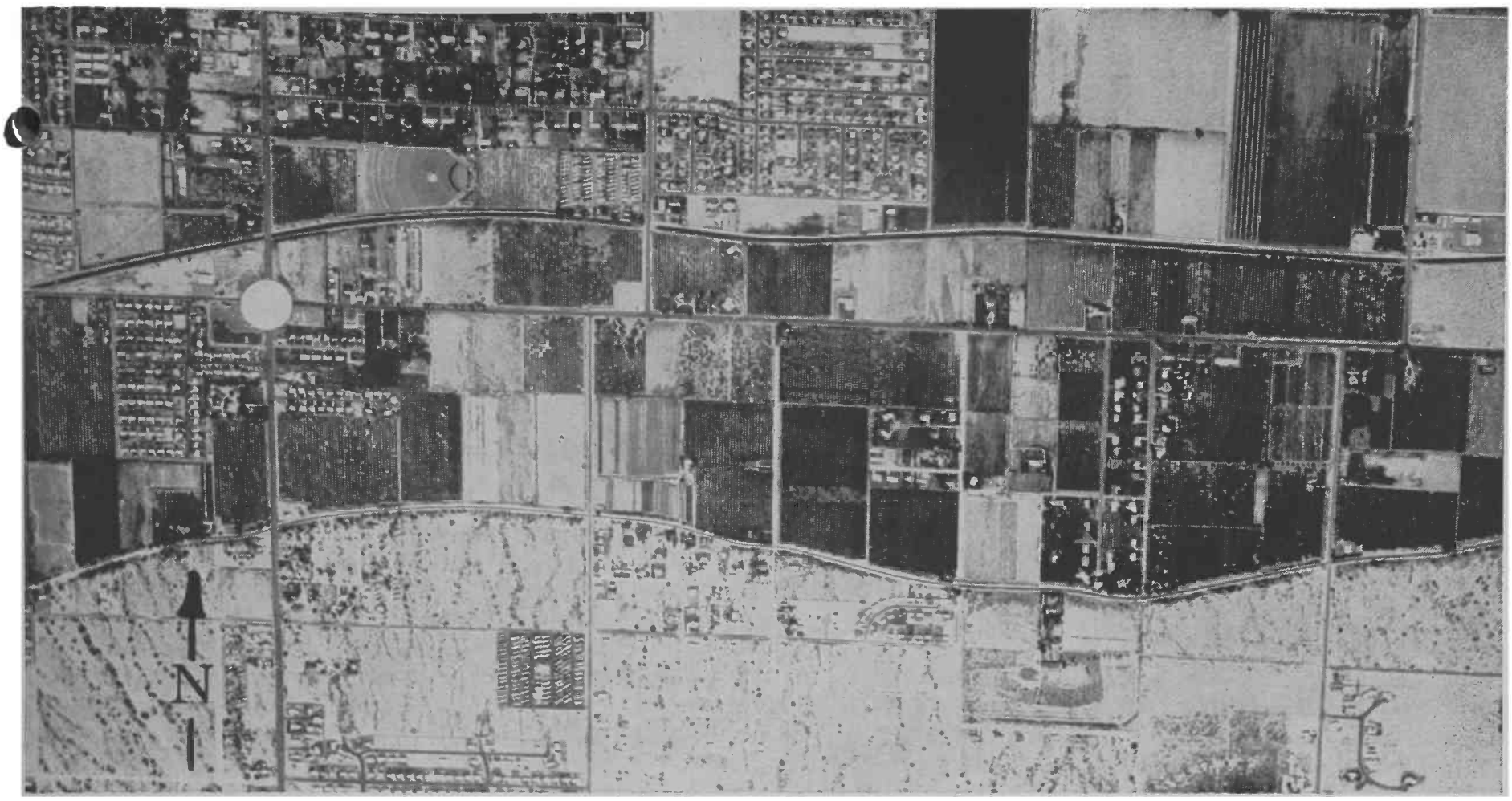
[1] *The comparative figures for* 1949 *and* 1962 *used in this article are taken from James S. Hill, Jimmye S. Hillman and Peter L. Henderson. Some Economic Aspects of the Arizona Citrus Industry, Tech. Bull.* 168, *The University of Arizona, Agricultural Experiment Station, Oct.* 1965, *Tables* 2 *and* 3.



In the aerial photograph Baseline Road and Central Avenue in South Phoenix, is at white circle, left. Citrus areas for the study were delineated by visual inspections of aerial photographs, by visual verification from ground surveys and sampling of randomly selected blocks. Through these techniques information was gathered relating to age of trees, varieties, spacings and tree numbers. North is up, West is left and East is right.

area. Relocation is a continuing event, and presently, new groves are being planted in the areas northwest of Phoenix and near Queen Creek.

Tree Ages

The information now available on tree ages is extremely valuable for estimating future trends in Arizona citrus production. Some of the information obtained in the recent survey is summarized in Table 2. By studying the age distribution of the trees by type of citrus it is possible to make short-run forecasts of future production. However, such an approach can still be subject to fairly large errors due to changes in economic and ecological conditions and due to unexpected natural events. Important changes that are either difficult or impossible to predict are top-working and tree removal due to low returns and/or residential expansion, insect and disease problems, and the incidence of frost damage.

Nevertheless, it seems fairly clear from the data presented in Table 2 that there will be a substantial increase in Arizona citrus production, at least through 1975. Citrus trees are generally considered to be in commercial production after the fifth year. At the beginning of this year 44 percent (21,780 acres) of the total citrus acreage in Arizona was under six years of age. The tangerine-types, red grapefruit, Valencia oranges and lemons have large proportions of their cur-

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Table 1. Arizona Citrus Acreage by County and Type, January 1, 1969.

Type of Citrus	*Maricopa County*	*Yuma County*	*Other Counties*	*State Total*
		(*acres*)		
Navel Oranges	**3,400**	**455**	**275**	**4,130**
Valencia Oranges	**4,790**	**12,900**	**10**	**17,700**
Sweet Oranges	**990**	**445**	**135**	**1,570**
White Grapefruit	**3,900**	**1,100**	**130**	**5,130**
Red Grapefruit	**860**	**600**	**90**	**1,550**
Lemons	**1,595**	**11,700**	**5**	**13,300**
Orlando Tangelos	**280**	**1,400**	**0**	**1,680**
Minneola Tangelos	**275**	**1,900**	**5**	**2,180**
Kinnow Mandarins	**1,430**	**270**	**0**	**1,700**
Algerian Tangerines	**445**	**250**	**5**	**700**
Dancy Tangerines	**60**	**40**	**0**	**100**
Limes	**20**	**40**	**0**	**60**
County and State Totals	**18,045**	**31,100**	**655**	**49,800**

Source: *U. S. Department of Agriculture, Arizona Crop and Livestock Reporting Service,* Arizona Citrus Acreage — January 1, 1969, *Phoenix, July* 2, 1969.

Table 2. Arizona Citrus Acreage by Age Group and Type, January 1, 1969.

Type of Citrus	*Age Groups* 1-5 *Years*	6-10 *Years*	11 & *Over*
		(*acres*)	
Navel Oranges	**795**	**1,530**	**1,805**
Valencia Oranges	**8,175**	**5,750**	**3,775**
Sweet Oranges	**515**	**240**	**815**
White Grapefruit	**1,030**	**110**	**3,990**
Red Grapefruit	**975**	**420**	**155**
Lemons	**5,585**	**2,270**	**5,445**
Orlando Tangelos	**1,480**	**200**	**0**
Minneola Tangelos	**1,565**	**500**	**115**
Kinnow Mandarins	**1,230**	**200**	**270**
Algerian Tangerines	**345**	**150**	**205**
Dancy Tangerines	**45**	**40**	**15**
Limes	**40**	**0**	**20**
State Totals	**21,780**	**11,410**	**16,610**

Source: *U. S. Department of Agriculture, Arizona Crop and Livestock Reporting Service,* Arizona Citrus Acreage — January 1, 1969, *Phoenix, July* 2, 1969.

Citrus Acreage Up

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rent acreage in the one through five year age group: tangerine-types, 73 percent; red grapefruit, 63 percent; Valencia oranges, 46 percent; and lemons, 42 percent. For these varieties and types, a doubling of recent output levels in the next six to eight years is certainly possible.

Are there any indications of a slowdown in the expansion of citrus acreage in Arizona? This is a difficult, if not impossible, question to answer with confidence; however, in the case of Valencia oranges, plantings in the last two years have declined. In January of this year only 80 acres of one year old and 980 acres of two year old Valencia trees were reported; this compares to over 2,000 acres each in the three, four and five year age categories. For red grapefruit an opposite trend seems to have developed; the 420 acres of one year old trees represent the largest annual planting of red grapefruit in the past five years. However, for the other varieties and types no clear trends are discernible. Moreover, in the case of Valencia oranges and red grapefruit, the trends noted could be quickly reversed by the actions of two or three large producers.

Arizona's Share

Although citrus acreage in Arizona has expanded rapidly, the total is still quite small when compared to acreage in other states, particularly Florida and California. For example, Arizona's bearing acreage of oranges for the 1967-68 season was equal to only two percent of the total bearing acreage of oranges in Florida and California; for grapefruit the comparable figure was seven percent. The impact of large acreages in other states is clearly felt in Arizona. Studies by economists have shown that average orange and grapefruit prices in Arizona are more significantly influenced by production levels in Florida and California than by the quantity of production in Arizona. This relationship is not likely to change in the near future since acreage and output are also expanding in the other producing states (especially Florida oranges and Texas grapefruit).

In the case of lemons, Arizona's share is somewhat larger: 15 percent of the total California-Arizona bearing acreage in January 1969. Furthermore, with 44 percent of the nonbearing lemon acreage of the two states located in Arizona, its share will certainly increase in the future.

Implications and Conclusions

What additional implications can be drawn from the data discussed in this article? Clearly, as the new groves reach maturity, more inputs such as fertilizer, insecticides, and labor will be required. Of equal importance will be the expansion in packing house facilities necessary to quickly and efficiently handle the larger volume of production. Some packing houses are already expanding and modernizing in anticipation of larger crops in the future.

The expanded acreage and the relocation of production will continue to create problems for the marketing organizations and the market order administrative committees. For example, the operation of the Lemon Marketing Order is already under considerable stress due to the rapid increase of lemon acreage and output in Arizona.

Finally, because of Arizona's relatively minor share of total U. S. citrus production, the anticipated output increases in Arizona *alone* probably would not adversely affect the price and income situation faced by citrus growers in this State. However, when the expected output increases in the other producing states are considered, it appears that average or above average *national* production will cause prices and returns to growers to fall considerably below the higher levels of the late fifties and early sixties. This is especially true in the case of oranges where other factors such as increased world production and the wider use of substitutes will accentuate the impact of larger U. S. production.