

PAST AND PRESENT IN THE CITRUS INDUSTRY

A. F. CAMP

Lake Alfred

About the time I initiated my annual perambulations around South America, I received a misssive from Irv Wander asking me to appear on your program. I incautiously accepted, having duly noted that he said "appear," not "contribute" to the program. To myself, I virtuously justified the acceptance as a desire to help out Irv, but my conscience insinuated that it was nothing more than the reaction of any superannuated firehorse to the opportunity to once more assume the trappings of his glory and display his spavined hocks to the public eye. The acceptance was a mistake, I had calculated that I could sandwich the writing in between revolutions and other entertaining South American diversions, but there were more diversions than I had anticipated. First, I had a ringside seat at a Peruvian election that didn't take in spite of the enthusiastic support of our ambassador for one of the candidates. The Army objected, and mindful of the Argentine countryman's remark that freedom to vote is a double-edged freedom because it includes the freedom to annul the vote, they did precisely that.

I then flew to Brazil in time to help them root their team to the world's football championship. This isn't the kind of football you are acquainted with, but a game particularly adapted to people of Latin temperament. You can only boot the ball with your head, chest and feet so you have your hands free to help you tell about your opponent's ancestors and gently express your divergent opinions to the referee. This game is very intriguing to me since it takes precedence in South America over both politics and business. Right up to the inauguration of the championship games in Chile, Brazil was involved in a burgeoning political crisis between their President and their Congress, but with the inauguration of the games, the politicians declared a truce and all Congressmen went home where they had better radios; businesses kept their doors open, but waited on customers erratically with their ears glued to their transistor sets; groves went unsprayed and fruit unpicked. Garrincha, who led the right wing on the team, had more support than the President, who is a left winger. After they won, they declared a two day holiday to welcome the gladiators home, and then went

back to politics and insect control, and I could get some work done.

I went to Argentina where I got involved in a month long postal strike, which was interesting because it caught the press off base, and was going a week or ten days before the public knew anything about it—anyway, nobody is in a hurry to receive bills down there. After that we had a couple of Gilbert and Sullivan revolutions. One of them started when a general disagreed with his bosses and decided to substitute action for words. He and his friends lined up their tanks and regiments and paraded down to Buenos Aires. Their opponents were caught with their medals off and were late in getting their boys lined up. The referees counted tanks and noses and declared the rebels victorious, and the temporary president, who is as flexible as an eel, fired the appropriate ministers and changed the indicated commanders, it's remarkable how flexible you can be when facing a tommy gun. Total casualties—one fireman shot by accident—a soldier thought he was trying to cut into the head of the chow line when he was only running to a fire.

In due time the losers got their medals on straight and lined up their boys. In this confrontation the referees ruled that they won by a bazooka, and the ministers and generals played musical chairs again, the President being fully cooperative as usual, that's why he is still President. We left about that time and I heard only rumors that someone had been killed, somewhere, somehow. Right after we left, the admirals who were annoyed because they had been left out of the headlines, stepped in and started some more lining up and some misbegotten idiot started shooting. After a little ruckusing around, they called it off, revolutions are no fun if there is shooting. Casualties—5 dead, 7 wounded, 200 nervous breakdowns. The public which loves parades, had a lot of entertainment and didn't have to buy a ticket. The Minister of Economy kept his job through it all even though he talked right rough about the military. Some of the generals said they had been insulted and threatened to challenge him to a duel, but no one suggested firing him. He was the only man who had displayed any ability for getting money out of Washington, and they didn't want to endanger either their salaries or their future retirement pay, to say nothing of their official automobiles.

Before someone rushes to phone Rusk that I'm endangering the peace, I'll tell you that much of the above was cribbed from the daily papers down there. We've lost our sense of humor here and have become such clots of inhibitions that we are even afraid to laugh at the ruin we see in the mirror in the morning for fear the bathtub will leak. The Argentines haven't lost theirs, and their newspapers had a field day at the expense of the generals and politicians. I liked particularly the cartoon of the two soldiers, one of them saying to the other, "We'd better call headquarters to find out which of us is the enemy this afternoon." There was also the columnist who reported that after the Good Lord had made the world and distributed climates and soils, lakes and rivers, and other good things, one of the Angels called attention to the fact that he had been overgenerous to Argentina. So, they decided that in order to compensate, they would people it with 20,000,000 "silly asses," I thought he was writing about our citrus industry.

Well, you're all deadly serious boys who deplore the overproduction of oranges, and are here to find out, if possible, how to overproduce two oranges instead of one, and you wonder what this discussion has to do with the citrus industry. Well, nothing, and maybe a lot, but if any of you came to hear me make a serious address on such a humorous subject as the citrus industry, you can turn up the dial on your transistor set and listen to Fidel, who is always dead serious, I hope that turns out to be a prophesy. Personally, I'm not a vice-director any more and can do the laughing I often wanted to do when the big spellbinders used to exhort their listeners to hold up selling their fruit until the market went up so that they could slip out to a phone and sell theirs during the resulting shortage, that never developed because there were too many other "silly asses" doing the same.

Down in the South American republics, I use the term republics loosely, they often liken their politics to a carrousel, merry-go-round if there are any illiterate heathens in the audience, and I've often meditated on the idea of writing a book called "Thirty-three Years on a Merry-go-round," but I need to find a few more interesting items in the obituary columns before it would be safe, the slander and libel laws being what they are.

If you don't believe that our industry is a good imitation of a merry-go-round, lets, as the politicians say, look at the record. I came to Florida in the mid-twenties at the end of a

period when they had planted citrus trees faster than a politician makes promises—the only trouble was that the citrus trees delivered. The production went up and the price went down in spite of temporary relief from freezes in 1928 and 1934, which were overruled by the depression. By the mid-thirties growers were busy branding their gophers, organizing committees and setting up organizations intended to raise the price of fruit, while their trees were neglected. Coloradd took a beating in an effort to find a scapegoat. I'll always remember a meeting of about a hundred citrus growers in Orlando. After I had finished my discussion on fertilizers and tried to roll up my charts and get away before the shootin' started, the chairman, who had a premonition, hung on to them so I couldn't leave. After a little backin' and fillin' the meeting got around, as I expected, to coloradd. A pleasant looking lady got up and after observing that she couldn't make a speech, proceeded to make a prevaricator of herself by oratorically damning coloradd in nineteen and one-half different ways. Then a tall, crackerish sort of guy got up and ran for Congress on a no coloradd program. The lady, nettled by the competition, got up again and after, figuratively speaking, hitching up her pants and pulling down her vest, outdid herself in a fiery condemnation of coloradd for what it was supposedly doing to the poor grower and the deceived consumer. When she ran down, someone moved the meeting demand that the Commission, the Legislature, the Governor or the Supreme Court put to death the culprit. The motion would have passed one hundred to nothing, but the chairman had qualms and insited that I comment. I had no more ideas than a catfish has scales, since facts have little value against impassioned oratory. To stall for time I asked the lady whether she referred to coloradd with dyes or with ethylene. It was like catching a 15 pound bass with an unbaited hook—the lady replied, "Oh I didn't know there were two processes. Do away with both of them." Having a lot of Parson Brown growers in the audience, I couldn't resist fishing a little more in the same hole, so I asked her where her grove was and found that she was just a tourist. I tossed the bait at the gentleman and snagged another lunker—he too was against both processes and had two trees in the yard of the house he rented. The motion expired and I folded up my tackle.

Well, a war and a ceiling price got us out of it and the price of fruit went up. The war

received the credit, but I vote for the ceiling price, which made it look as though the fruit was selling for less than it was worth. We were on another whirl around again and planting trees as though the war was going to last forever. But it ended, and worst of all, they eliminated the ceiling price, and we were weeping and appointing committees again. A freeze in California gave us a little respite, but we were down in the dumps again.

Then we were saved by a new product, frozen concentrate, and in no time at all we were shoving out the Eskimos and polar bears and planting lands so cold the planting crews had to wear earmuffs. Well, the merry-go-round had a whirl, and just as we were back organizing committees again, we were saved by the freeze of '57. We were on Route 66 again, this time relocating bullfrogs to plant more trees and raise more fruit so we could once more enjoy a surplus. So, we whirl around again and the committees are at work trying to repeal the laws of supply and demand. That's our citrus industry—we're alternately planting like women talking, or shedding tears like professional mourners over overproduction—no middle ground. The next time prices go up we'll be trying to use our lakes for citrus water culture in view of our success with sand cultures.

But, what you want to know is the solution, and I'll tell you this, our industry won't tolerate any simple solution. I remember how I innocently suggested to a committee on "two bit" grapefruit, that since they had agreed that we could expect \$1.50 for grapefruit if there were 20% less fruit, that we ought to divert 20% of everyone's fruit to uses outside human consumption. It wasn't acceptable—so I'd figured that over a dollar a box profit on 80 boxes was better than a 25¢ loss on a hundred, but my mathematics must have been faulty because the committee wouldn't buy it. They seemed to feel that a law requiring all Republicans to eat two grapefruit a day was a more sensible solution, the Republicans weren't cooperative.

Let's look at the solutions we've been blest with and see how they'd work in our present dilemma. Well, freezes have saved our scalps various times, but we're so big now a freeze in California won't accomplish any more than a dog's scratching, it'll just make us feel better. Arranging a Florida freeze would probably meet with no unanimous support in the industry, if anything ever did. Besides, we'd just process

all the frozen fruit, and juice in cans will bury you as fast as juice on the trees.

We were saved by a war—but the one in Mississippi didn't last long enough to raise the price of fruit. Maybe Castro will accommodate us, but it might be better if he lost after capturing Florida, then he could get a reconstruction loan from Washington and our fruit would be worth a lot, but then Fidel might not divey up.

We were also saved by a new product, frozen concentrate. Now we need another. The trouble is that when we're making money we can't raise money to find a new product, and when you're losing money you haven't time or money to do it, so we go round and round again.

There is one solution, however, that merits the attention of all committees, and that is getting the government to reimpose a ceiling price. This has the effect of making the buyer think he is getting a bargain and has wonderful possibilities. That a war alone won't do it is attested to by the failure of the war against Mississippi—it was the ceiling price which did the work, and I respectfully recommend it as the most feasible solution, war or no war.

I'm not much worried about the future of the industry—it's practically indestructible. It has withstood freezes, hurricanes, overplanting, politics and innumerable committees. I'll always remember the time when we tried to save it with a code. The code came on trial before a court of three out of state judges, and one witness after another blasted out Brix's and solids like a jet engine. Finally, with one of our leading packing house managers on the stand juggling Brix's and solids like a vaudeville headliner, one of the judges said, "You and the other witnesses keep talking about degrees Brix and percent solids, and we don't understand them. Can you explain them to us?" After fumbling around like a man trying to duck a dinner check, the witness finally allowed that all he really knew was that they put the juice in a tall cylinder and then they put in a funny looking glass thing with a bulb on one end and a long stem on the other, and read off a number on the stem and that was the Brix. The judge was so thick-headed he still didn't understand, so the defense lawyer, instead of calling one of the eight or ten technical people in the audience to elucidate, tried to do it himself, and when he got sort of spread eagled, the opposing lawyer helped out, and by the time they got done none of the technical people knew what Brix was either. You didn't know whether to laugh or cry at the

spectacle of an industry being tried by three judges, two lawyers and a star witness who didn't understand what the fighting was all about. The industry survived! An erudite columnist wrote that all that saved Argentina from destruction by the politicians and the generals was that the cows kept to the old fashioned ways and went on doing what comes naturally—the citrus industry is saved perennially by the trees that do the same.

All good things must come to an end—and, too late, all bad discourses must do likewise. To conclude I want to point out that the title of this paper is listed in the menu as "The Past and Present in the Citrus Industry—Question

Mark." That question mark is a stroke of genius—it delineates the past, the present and the future better than a million words—it's concise, descriptive and very educational. I wish I'd have thought of it myself, but Irv must get the credit. It still is the master stroke that makes the title.

Finally, and in a very serious mood, I want to make a wish for the citrus industry—may the breeding program for cold resistance you so ardently supported after the 1957 freeze be so successful that we can extend the limits of the industry to Washington D.C., and make Tallapoosa, Georgia the citrus capital of the world.

A CASE OF SODIUM TOXICITY IN CITRUS

PAUL F. SMITH¹

U. S. Horticultural Field Station

Orlando

In 1957 a large experiment on nitrogen rates and sources was started in a 35-year-old Valencia grove near Windermere, Florida. The trees have Rough lemon roots and are growing on deep Lakeland fine sand. After several years of rather uniform behavior, the trees that received fairly high rates of nitrate of soda as a sole source of nitrogen became unthrifty looking and began to decline. In about one year a number of apparently normal trees degenerated to an almost leafless state and assumed the appearance of hardness resembling that of trees severely affected with spreading decline. There is no spreading margin, however, as the trouble is sharply confined to plots receiving the high rates of nitrate of soda. Trees on lower rates of nitrate of soda and those on all rates of ammonium nitrate continue to appear normal and bear heavy crops of fruit. The present report is concerned with the studies made on the cause of this decline. The experiment is not completed insofar as the effects on yield and fruit quality are concerned, and no data on these aspects will be reported here.

¹The author gratefully acknowledges the cooperation of the personnel of Chase Groves Inc. on whose property the experiment is being conducted. Especial thanks is due Dr. Ivan Stewart for comparative samples from a similar experiment on Pineapple oranges being conducted at the Lake Alfred Station and to Dr. Julius Feldmesser for nematode identifications.

EXPERIMENTAL BACKGROUND

This grove was close planted (15 X 30 ft.) and has been well cared for except that, like most groves of this age, it had received excessive copper before 1952. A few trees show scaly-bark symptoms of psorosis and the attending weakness from that virus disease. The majority of the trees, however, appear normal and have a very high production history. Except for two years (1952, 1953) when copper toxicity was at its zenith, the yield has averaged about 600 boxes of fruit per acre for the past 20 years. Production in 1952 dropped to less than 500 boxes per acre and in 1953 to less than 400 boxes. Full production was resumed in 1954 after heavy liming and the curtailment of the use of copper in 1953. The grove is irrigated when necessary.

Spot sampling of soil and roots in 1957 showed that the citrus nematode (*Tylenchulus semipenetrans*) was present in goodly numbers throughout the grove, but no areas of tree weakness were evident.

Nitrogen rates of 0.25, 0.32, 0.40, 0.47, and 0.55 lb. N per box were chosen and applied twice yearly beginning in April 1957. For a 600-box capacity, these rates equal 150, 195, 240, 285, and 330 lb. N per acre per year. These are provided separately in the form of anhydrous ammonia, ammonium nitrate, and nitrate of soda and each treatment is applied in 4 randomized blocks.

OBSERVATIONS, TESTS, AND DISCUSSION

General observations.—For the first 4 years