The Terra Nova Trading 2025 California Almond Crop Estimate

"We made too many wrong mistakes"

- *Yogi Berra*

How do you turn a 3.0 billion lb crop into one that produces only 2.7 billion lb?

While this might sound like the start of a joke waiting for a cheesy punch line, this was the genuine question we have been asking ourselves over the past three to four months about the 2024 California almond crop. What started out in April 2024 with TNT calling for a 2.97 billion lb crop and many others commenting that the 2024 almond crop would "*easily make 3.0 billion lb or more*", it seems strange to us that the crop fell woefully short at 2.7 billion lb as evidenced by the March 2025 position report released late last week.

Despite the statewide average yield difference being less than 200 pounds per acre—barely noticeable to the naked eye—between our estimate of 2.97 billion and the actual crop receipts of 2.70 billion, some orchards in the southern region were off by more than 1,000 pounds per acre. How did so many of us, so-called "experienced estimators," get it so wrong and believe we were on track to harvest California's second-largest crop ever in 2024?

Most obvious explanations usually center around the prolonged and excessive heat spell that California endured from late June though early August last year. This had the effect of drying almonds to lower moisture levels than normal and therefore losing weight being harvested from the orchards. We do believe this was the main culprit for taking a crop from the objective estimate of 2.80B lb to an eventual crop of 2.70B lb, but it is not the whole story in our opinion.

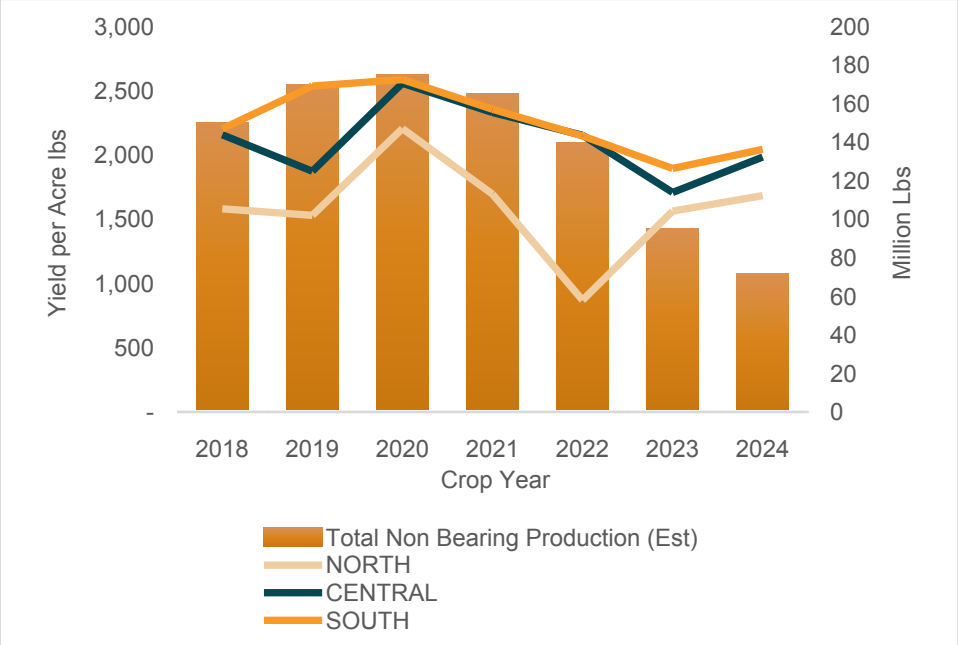
The heat spell explanation does not account for the fact that the Objective crop estimate of 2.80 billion pounds, released in July, was based on field work conducted from late May to mid-June—by which

time the crop was already looking worse than it did in early April when we went out, and worse than what growers who participated in the Subjective crop estimate of 3.00 billion pounds had observed during April and early May.

Our investigations into other possible causes for such a surprising low crop have not provided any conclusive evidence, however, the most likely hypotheses are:

- There was a dramatic cut in fertilizers and other necessary inputs to the orchards by most farmers over the last 3 to 4 years, culminating in the 2024 crop year due to serious financial constraints and inflationary pressure on inputs that produced a longer and more pronounced "drop" during May and June. We noted the importance of this in our 2024 crop report: "*For the 2024 almond crop in particular, this theme of reduced fertilizer / nutrient / pesticide programs will continue to be one of the most important factors in the eventual 2024 crop being harvested*".
- The tail end of a hurricane that struck mainly Kings, Kern and Tulare counties in early September 2023 led to excessive disease pressure in orchards just as the trees were deciding whether to produce fruit buds or leaf buds for 2024 crop. Did this contribute to a larger-than-normal drop in the South, and explain why so many people missed their estimates for the region? It was likely a combination of the factors mentioned above, along with the historical bias in estimating the South—where expectations are anchored to typical production levels, making it hard to accept a 'small' number. That, coupled with natural pressures on the trees and exacerbated by reduced financial inputs to protect the crop, likely drove the shortfall.

Another question that perplexed us while we were on this year's crop tour was the trend of California's declining yields over the last 7 years. Again, here we only have likely causes to offer rather than concrete evidence:



- Looking back at the trends and changes in the California almond industry in the last 7 years it is easy to see the dramatic increase of non-bearing acres leading up to our largest ever crop of 3.10B lb in 2020. In hindsight, the 2020 average state yield of 2500lb per acre was skewed by a large contribution of crops produced by at least 350,000 non-bearing acres. The approximately 60% decline in non-bearing acres since 2020, as well as the exponential growth of yields as young non-bearing orchards come into full production, means that we will be "missing" 100-200 million lb of crop receipts each year until such time that new plantings increase substantially. (see chart above)
- As mentioned earlier in our report, many farmers have been increasingly cutting back on fertilizer and other inputs due to financial constraints and loss-making almond grower returns over the past 3-4 years. This has had a cumulative effect on orchard yields in all parts of the state. With pricing improving considerably during 2024 and early 2025, we expect to see this trend reversing this season as growers do their utmost to maximize their crops at these new higher price levels. Talking to PCA's and fertilizer companies, this shift has already started.
- Finally, we see SGMA (Sustainable Groundwater Management Act) has started to play a much bigger role in the agricultural landscape in California in terms of almond crop yields, orchard abandonment and new almond orchard plantings / replants. Southern counties of Kern, Kings and Fresno continue to see the largest amount of orchard removals while the central and northern counties are seeing the largest number of plantings or re-plants. This shift from what were the traditional higher yielding southern counties to average to lower yielding northern counties in search of more water security under SGMA has showed in lower state wide yields and we expect this trend to continue.

We always like to talk about the "early consensus" that tends to form around crop size almost immediately after bloom which seemed to lack buyers' input this year. After last year's "miss" on the crop, growers seemed convinced that 2025 crop cannot be bigger than last year, and in fact would land somewhere between 2.4-2.5 billion lb. For context, this would mean statewide yields of only 1800lb per acre and a crop equal to 2023 crop which was the worst average yield since 2005. We believe the strong upward market trend, combined with the highly publicized issue of bee colony collapse, triggered an emotional response that led to pessimism about the crop despite excellent bloom weather. The market influencing crop perceptions in California is nothing new; in fact, just last year, many growers estimated the crop at around 3.2 billion pounds as early as January, well before any bloom had occurred. This was likely a result of the familiar "market dictates perception" phenomenon.

With many questions about the final 2024 almond crop—how it compares to our estimates and what it might reveal about future industry trends—we set out on our usual 7-day journey through all of California's almond-growing counties. As we always try to improve our efforts, we added an extra set of eyes this year, which meant 3 readings in each of our 560 sample orchards, and this year driving

over 1600 miles. While covering the ground necessary to accurately portray a crop spanning more acres than the entire state of Delaware—and witnessing the vastness of different regions, microclimates, and more—we fully understand that this estimate is, in many ways, a fool's errand.

Starting with our acreage multiplier, it seems we were a little premature in calling for up to 100,000 acres to be removed last year. Given the cost to remove orchards and the below cost grower returns received during 2024, we can only theorize that some growers postponed orchard removals due to a lack of confidence in long term almond pricing, or orchard removal companies were simply too backed up to get acres removed before harvest. With increased pricing and some long-term optimism returning amongst growers, we assume there will be an increase in older orchards being pulled out / re-planted. This will cause a small decline in almond acreage as only around 60,000 new acres were planted in 2021 / 2022 season, with approximately 80,000 acres removed or soon to be removed for this years crop. Therefore, we will be **using 1,360,000 bearing acres for our 2025 crop estimate**.

Post-bloom weather has been more erratic than in previous years. We've seen two to three strong storm systems bring heavy rain and some localized hail, both of which can damage a developing almond crop. While weather events like this can be devastating for individual farmers, they are typically too localized to significantly impact the overall crop.

Water availability and reservoir levels in California seem to be in good shape again this year, so water issues will have little impact on almond growers except those outside of decent water districts where pumping water will continue to get ever more punitive under SGMA's rules.

Our general observations for the 2025 California Almond crop are as follows:

- With few exceptions, this year's theme across the state seems to be one of **alternate bearing**: if a grower had a good to excellent crop last year, then this year's crop looks average at best. Growers with poor to average crops last year are being rewarded with (much) better crops this year.
- Younger orchards of 10 years or less are generally very good with many newly bearing orchards carrying close to their maximum potential in most growing areas this year.
- The Northern counties look similar to last year, which is to say good crops in many areas, especially younger orchards. A few notable exceptions would be Northwestern Colusa, Western Glenn counties and Hwy 32 corridor near Orland where crops were not great.
- Central growing counties were a little inconsistent except for Independence orchards and younger orchards. San Joaquin, Stanislaus and Merced were average crops, while some areas in these three counties looked excellent, most notably the Ripon area and Hwy 140 corridor west of Merced.

- Madera county looked a little weaker than last year, while Westside Fresno County orchards look very good again as they continue to have access to water. The Kerman area and eastern Fresno are a mixed bag with alternate bearing being the deciding factor in this year's crop.
- Southern counties of Kings, Kern and Tulare had some horrible crop yields last year compared to more central areas of Fresno and north. Some orchards in KKT only produced 1400-1500 lb per acre, when they are usually turning out double that amount. This was the area where we missed the most on our 2024 crop estimate. With more critical eyes this year, we think these southern counties have a range of crops from average to excellent in 2025, especially young orchards that look very good. The difference on some of the older orchards we feel this year is that where we see an "average" orchard we feel it truly is an average of 2200-2400 lb per acre, and that should make a difference in this part of the state.
- Putting it all together, our estimated average yield for this year's 2025 almond crop is 2,060lb per acre which puts this crop slightly below the 10 year average, and yields of about 5% better than last year. While some readers may find it hard to believe that a better crop than last year is possible, we "only" need an additional 100 million pounds in receipts—driven by improved performance in Kings, Kern, and Tulare Counties (which would still be at or below average on a yield-per-acre basis), along with contributions from young orchards across the state.

Crop Year	Yield (lb. per acre)	
2015	2000	
2016	2210	
2017	2200	
2018	2090	
2019	2170	
2020	2490	
2021	2220	
2022	2220	
2023	1780	
2024	1960	
2025	**2060**	**(estimate)**
10-year average	***2102***	

When looking at the main varieties planted in California, our general observations excluding regional variations, are as follows:

Nonpareil – In 2024 Nonpareil started out as an excellent crop and ended up disappointing a little, but this "poor" 2024 crop ended up being the best performer. In 2025, we expect a similar to slightly smaller Nonpareil crop which will be aided by the younger orchards that have a much-improved crop this year. We also noted more crazy top in Nonpareil orchards than we have seen in the past.

Monterey – Last year's crop turned out to be disappointing for this variety and was probably made worse by the heat spell during Late June to early August. While we do see a marked improvement, we still do not see a bumper crop that Monterey variety can sometimes produce. Nut drop is already underway in this variety and will likely continue in the coming weeks. We expect a similar crop to last year.

Independence – Last year was a poor year for this variety and it was possibly "worst ever" in terms of state wide average. This year it has bounced back very strongly after resting and has a much larger nut count on the trees. With the higher nut count, we expect kernel sizing should be a bit smaller than last year's very large kernels. We expect to see a greatly improved Independence crop in 2025.

Carmel – This variety is still struggling with bud-failure / crazy top and this older variety looks to have an average crop this year and continues it's slow and steady decline with almost zero new plantings. We expect a slightly smaller Carmel crop this year.

Fritz – Another good to excellent crop for this variety with decent nut counts in most orchards. However, with the very small kernel sizing and only older orchards remaining, overall crop receipts should be similar to last year.

Aldrich – After a poor performance last year, Aldrich has come back with an excellent crop this year and much higher nut count. Kernel sizing can be small for this variety when it has a good crop, so we expect a larger Aldrich crop this year but with smaller kernel sizes.

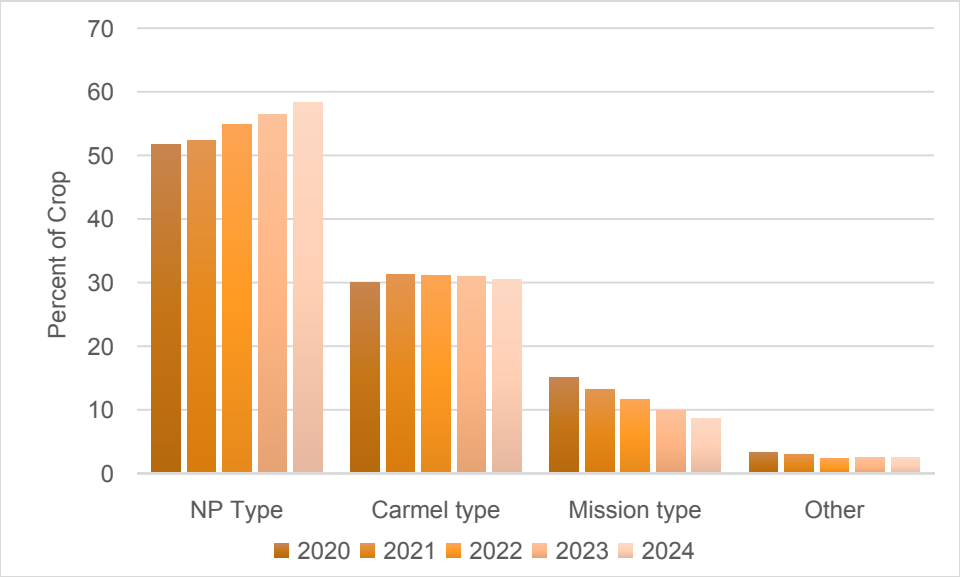
Butte / Padre – Last year's "mixed bag" on yields for these two varieties has given way to what looks to us to be a much better Butte / Padre crop in 2025. With limited new plantings, we see a slight increase for production of Butte / Padre for 2025 crop year.

Wood Colony / Winters / Price – All of these varieties look to be very good this year, especially Wood Colony. Combined these varieties only make up approximately 5% of the total crop and so cannot make any meaningful difference to overall crop receipts but we expect to see improved production from the pollinators.

In 2023, California had a very short crop of 2.45B lb. The good news was the reduction in supply helped the industry to finally sell its oversupply and move back to the regular carry-over of 500m lb. The bad news about this "regular" carry-over was that it created shortages in many different markets of Carmel type almonds starting in May 2024. Again in 2024 season, California had another relatively short crop that will likely further exacerbate the shortage of Carmel type product and other California

type pollinators. This is easily demonstrated by the steep rise in prices over the past 12 months as well as compression in prices between Nonpareil / Nonpareil type and Carmel / California type almonds.

To better understand how these shortages started to arise it is helpful to look at the change in variety supply from California from 2020 – 2024 in the below chart. As you can see, Carmel Type and Mission Type combined have had less crop for the last three seasons, while the Nonpareil Type has continued to grow as a percentage of the total.



In our 2.8 billion-pound estimate for this year, we anticipate an improvement in the supply of Carmel types. While Butte/Padre varieties also appear to be showing gains, the overall shortage of Mission-type plantings will keep this segment smaller this year. Additionally, with the vast majority of plantings over the past decade consisting of either Nonpareil and a pollinator, or self-pollinating Nonpareil-type varieties, we expect Nonpareil-type production this year to be similar to—or better than—last year.

As always, our efforts represent an informed best guess. We hope the insights we provide are just as valuable as the number itself. As we've often said—and were reminded the hard way last year—there's a long road from April to harvest, full of variables and black swans. And to all the skeptics out there, don't forget: our money-back guarantee still applies.

Thanks for taking the time to read our report.

Stuart / JJ / Jarred / Michael