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## The 2023 Terra Nova Trading Crop Estimate

*"It's tough to make predictions, especially about the future."*

- **Yogi Berra**

With the truly unprecedented and unforeseen weather conditions in California during bloom and post-bloom, more people than ever seem to be waiting for our report to shed some light on the current situation. With all that added pressure, we knew we had to cover more ground and see more orchards than ever before to report on the 2023 California almond crop.

As keen as we were to get started, we had to delay our crop estimate by more than 1 week as the cold, wet conditions meant bloom lasted much longer than usual and crop progression was behind its usual timing. When we were finally able to get on the road, we ended up covering more than 1,800 miles, walked about 8-9 miles per day, in total saw almost 500 different orchards up and down the state, taking multiple readings each time and ended up collecting over 1,000 data points for our 2023 crop estimate.

Before we hit the road each year, we start with a thorough analysis of our efforts from last year. With hindsight, we can see we missed it in two spots: we overestimated in the north of the state where eventual yields were a shockingly low 870lb per acre over the entire area due to frost and orchards not being harvested; and we also overestimated in Fresno where, in parts of this county, drought stress and lack of access to surface water later in the year clearly had an impact on eventual yields or forced some farmers to completely abandon their orchards and not harvest at all. It's only a small consolation that we were not alone in our overestimation last year with many of the "early" estimates, including the subjective estimate, all calling for approximate yields of 2,100lb per acre compared to the eventual final receipts of only 1,860 lb per acre.

It is worth focusing on these “misses” in our estimate from last year as it clearly highlights the difference between estimating a crop on a particular orchard in April and the eventual harvest, or not, of that same orchard in August / September. As an example, we know of many farmers in the north whose crops were severely affected by the frost in 2022. Back then we were asking ourselves if the orchards would even be harvested and we have since discovered that in many of these instances, especially where growers were paid out by their crop insurance, the farmers decided not to harvest their 2022 crop as it was not economical to do so.

On our crop tour this year we saw orchards in various parts of the state where the crop looked similarly absent, albeit for different reasons. With the knowledge of last year, we were again faced with the “*forecaster’s dilemma*” of deciding whether to score an orchard with 300-400lb per acre that we see on the trees today, or should we score this orchard as “zero” in the expectation the crop will not be harvested. In our 2023 crop estimate, as we did last year, we have decided to score each orchard based on what we see on the trees now, rather than second guess whether a farmer will harvest their crops or not, which will likely depend on prevailing market prices at harvest time.

In previous crop reports, we always address the “early consensus” on crop size that seeps into the industry commentary after bloom. We believe that due to the extreme weather conditions across the whole state during the bloom and post-bloom period, it seems the market has not established one yet, with widely varying crop sizes being discussed among buyers and sellers. The few early estimates we have heard from various sources have been from “*well below 2.0 billion lb.*” to “*easily same as last year*”, with no real thought about acreage or yields from last year to put those numbers in context.

How did we arrive at the 1.39 million bearing acres we are using this year? Our investigations with various Nurseries, in addition to acreage reports from Land IQ / NASS / Nursery Report, tell us that about 110,000 acres were planted in 2019/2020 season. Further investigations with tree removal companies lead us to believe that as much as 90,000 acres will be removed prior to harvest of the 2023 crop. At this point we feel compelled to discuss bearing acreage with a little more detail and context given our observations on the crop tour.

Bearing acreage is one of the most important factors in determining crop size, not only for our estimate, but for all almond crop estimates. With the very large footprint of over 1.6 million total acres in California, it is becoming harder for anyone to keep up to date with the new plantings and removals that occur each year. While we have put a large effort to come to an accurate acreage number as a multiplier, our acreage number as well as Land IQ and NASS cannot accurately keep track of all bearing acres. We believe we are about to enter a period where official acreage estimates will vary from acreage harvested each year due to the numerous orchard removals that are not yet seen in industry maps (we know this as many removals on our trip are still showing as bearing acres), as well as

“planned” removals still to be removed before harvest but delayed by this year’s weather events. Also, there are many acres that are now fully abandoned but the farmer does not have enough money to remove them, and some orchards that currently look farmed will end up abandoned this season as irrigation hoses have already been removed. We have taken all of this into consideration when coming to our number, but we thought it pertinent to explain the complexity of it all.

General observations from this year’s crop tour:

- In all areas except the North, it was easy to see crop yields were down, in some spots by large amounts. Crop yields varied from not only from orchard to orchard as is typical, but from tree to tree in the same row. We also noted that crops got noticeably worse as we walked further into the orchard centers. The “drive by estimators” will have a hard time with this crop, as the outside rows looked very different than the inside rows, and the primary reason why we covered almost 9 miles per day walking in and out of orchards. In fact, we fully expect yields to be the lowest they have been for many years – please see table below.

*Worst Yields 2013 - 2023*

Crop Year	Yield (lb Per Acre)
2023	1650(e)
2022	1860
2015	2000
2014	2010
2018	2090

- Given the much lower nut count this year, we already see and fully expect kernel sizing to be much improved given the improved access to water in all areas of the state. Here we think farmers should be able to claw back some lost yield due to higher weight per kernel, but this of course is dependent on spring and summer weather between now and harvest.
- The amount of orchards we saw with nothing or close to nothing on them certainly surprised us. Last year we saw these very poor yields only throughout the North, whereas this year we saw about 5-6 per day distributed evenly throughout the entire state. The words “utterly atrocious” were mentioned more often than we have done in many years.

- Many orchards in the southern counties of Fresno, Kern, Kings and Tulare, usually California's powerhouse, look to be off considerably from last year's yields. We very rarely saw the usual limb-breakers that we encounter in these areas. We also expect the northern counties will have better yields after recovering from the frost in 2022 but still below average yields for this area.
- We have seen a large number of orchards suffering from bacterial or fungal diseases, most likely because of financial constraints combined with extreme weather. Bacterial blast that favors cold wet conditions has been obvious in some orchards, as has brown rot in orchards with varieties that are very susceptible to this fungal disease. We expect this to bring down crop potential, but as of this writing, it is impossible to say how much.
- Flooding has been seen in many places, and we expect it to get worse. We have record-breaking snowpack in the Sierras, and as it melts, it will mean some orchards will be left in standing water or saturated soil for many days. We expect this pattern to increase phytophthora pressure in the coming months and is likely to bring down potential.

Despite some obvious regional variations, generally speaking, we saw the main varieties as follows:

**Nonpareil** – By far the largest variety that California produces, appeared to have quite a poor crop, especially in places where there was a very good crop in 2022. We believe this variety will size up nicely during the year given the more than adequate soil moisture available to the trees. It will need it with how poor it looks on the trees today.

**Carmel** – This older variety is already in terminal decline and not being planted any more. This year many orchards are showing considerable crazy top, and overall, it is showing a very poor crop.

**Monterey** – Looked to be the best of the non-self-pollinators, probably because neighboring NP looked so weak, but still not a bumper crop. Most Monterey orchards looked like a “drop” was still to happen in the coming days / weeks and we expect to hear about this from growers soon.

**Fritz** – Looked decent after last year's poor performance, but again, not a bumper crop here either.

**Butte / Padre** – In decline with limited new plantings, was a real mixed bag: some crops looked pretty good while others had almost nothing on them due to fungal disease (brown rot) or a lack of pollination.

Other pollinators: **Price, Wood Colony and Winters** looked decent in some orchards and very poor in others, so again there was no real consistency to be found in these varieties.

**Independence/ Shasta** - Relatively speaking, these are the star performers this crop year, but a below average showing for them compared to normal years. These self-pollinating varieties appeared a little more consistent than all other varieties. We also expect to see a “drop” on these varieties that will take place in the coming days / weeks.

A final comment worth noting on varieties is that only three varieties of Nonpareil, Monterey and Independence made up over 70% of California's total crop in 2022. This will almost certainly be the same again in 2023 and therefore if we look at yields of these three varieties at harvest it will provide us with a good indication of total crop size, which we estimate will end up at 2.29 billion lb.

We noticed that many farmers have been forced to reduce their farming costs this year with less fungicides, fertilizers and other inputs applied and / or less bees placed in the orchard for pollination. Unless you are one of our few cave dwelling readers, then you will already know about record cold, rain, snowpack conditions and their major impact on almond farming in many different ways. In normal bloom weather conditions, this usually has only a marginal effect on crop production, but this year's extreme weather has seen to it that those farmers who took shortcuts, whether by choice or by necessity, will very likely pay a heavy price with some dramatically poor yields.

Last year we wrote *"We always throw in a caveat about the variables that might occur between our estimate and the harvest, but this season we really need to stress the difference between our estimating a decent crop in early April, and the many limiting factors influencing final crop that gets harvested. We are confident in our number today, but there are a lot of significant unknowns, and our crystal ball unreliable – such that it might not reveal a wet and benign summer, nor the dry and searing one that is almost presupposed; and we certainly cannot forget about "black swans", which seem to lurk around every corner, waiting to avian mug us..."*. As discussed throughout this report, there are more variables from today to harvest than ever before, so we believe this paragraph (apart from the "decent" crop in early April) from last year carries more weight than ever. If the crop finally exceeds our number, then the only answer will be "it's the acreage, stupid". And if it comes in lower, we refer you to an Old Time saying that "big crops get bigger and small crops get smaller" – and there are plenty of reasons for diminution, none trivial, and all hard to quantify.

For all those dissenting views, our money back guarantee still applies.

With regards to all.

Stuart / JJ / Jarred / Michael