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MAREX

El Niño impact on Malaysian and Indonesian palm oil production

Executive summary:

- 26/27 USDA numbers show current Malaysian yield estimates below their strong El Niño average, whilst Indonesian 26/27 yield estimates sit above their historic average and .343 MT/Ha above their average yield in strong El Niño years. Using past strong El Niño yields in both countries reduces 26/27 global production by 4.526 million MT and lowers global S2U from 11.9% to 8.3%. This would be the lowest global S2U in Indonesia in 52 years and 18th lowest globally.

- Given the lagged physiological impact on tree's witnessed in past El Niño events, if a strong El Niño plus 1-year yield were used, this would see world ending stocks fall 6.317 million MT over 2 years and take the global S2U to 6.9%, the 8th lowest in 52 Years. Whilst the nearby part of the futures curve has carry through February 27, after this backwardation is present, we see this pricing in the forward scarcity risk. Indonesia would also require imports to balance exports and domestic use.

- El Niño intensity matters, an Indonesian crop with an El Niño on par with 1997/98 delivers a double digit negative S2U locally before physiological stress acts to reduce yields in future years. Whilst El Niño was the key driver in 97/98, issues were compounded by the Asian financial crisis and inability to secure inputs. However, 2015/16 and 23/24 El Niño analogues deliver scarcity risk.

- Palm oil consumption growth rates are the 44th lowest in 52 years and 2nd month bean oil premium is only surpassed by short-lived price spikes in 21 and 22. Consequently, we see little room for lower palm oil use to solve a tightening global balance sheet driven by weather impact.

- Yield evidence from past El Niño episodes tables are enclosed below for trader scenario analysis. Whilst weather and policy risk remains an upside price risk, it should be noted palm oil does still have historically high stocks currently, China UCO prices are weak and whilst the Indonesian balance sheet suggests imports are possible, export restrictions and rapeseed oil and sunflower seed oil imports which haven't seen the explosiveness of bean oil prices are likely to solve for this.

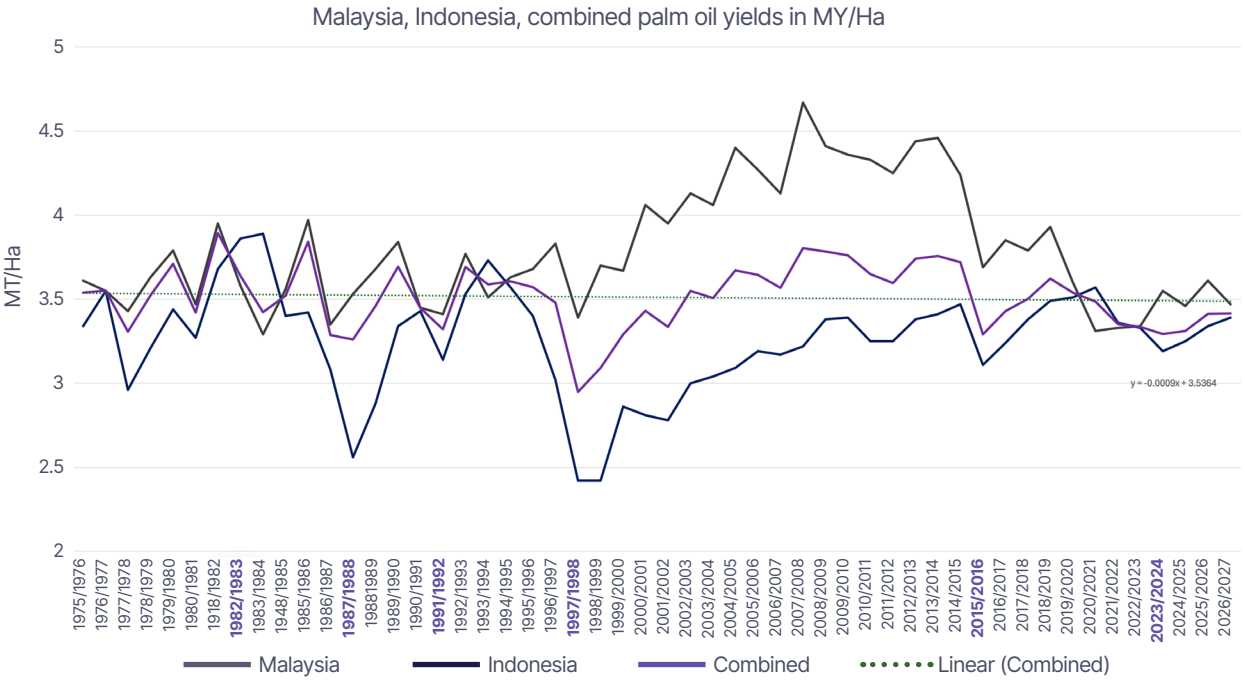
- A price rally has already occurred rallying from a 26 low of 3991 MYR/MT to high of 4839 MYR/MT which exhibits some of the price anticipation we saw in the 2023/24 El Niño event but also difficult to decouple from the broader Strait of Hormuz commodity rally. Prices have now retraced to 4541 MYR/MT, making it difficult to say if prices are exhibiting 97/98 and 15/16 or 23/24 properties.

Background:

Palm oil is the world's second most consumed vegetable oil and will account for 46% of the global exportable surplus in 2026. Malaysia and Indonesia supply a combined 88%, according to latest USDA numbers. In terms of production, no other product matches its geographic concentration risk.

Using an October/September marketing year, the USDA estimates output from the two countries at 67.1 million MT, against global consumption of 79.6 million MT. Stocks-to-use ratios tend to be structurally thin, estimated at just under 12% in 26/27. This means a production shortfall of just a few percentage points, can move the global balance sheet significantly, especially so in Indonesia which provides 71% of the combined production. Whilst, the two countries have different production structural dynamics, both countries draw on an equatorial climate system that makes them acutely exposed to El Niño risk:

How El Niño impacts yields:



Source: USDA FAS PS&D.

In year, direct moisture stress during fruit bunch development phase impacts fresh fruit bunch (FFB) weight and bunch count. Particularly in Indonesia where rainfall variability is greater and irrigation is rare. Whilst palms are resilient in non-strong El Niño years with yield above base line, strong El Niño's have reduced Indonesian yields by up to .84 MT/Ha, Malaysian yields by up to .41 MT/Ha and combined yields by .56 MT/Ha in worst case instances. Average yield loss from strong El Niño direct stress is .270MT/Ha in Malaysia, .211MT/Ha in Indonesia and .220 MT/Ha over the two producing nations.

The lagged (physiological) impact is also consequential, where palm's 9–18 month reproductive lag is reduced by water stress and doesn't fully manifest until 1 to 2 years post an El Niño. Indonesia's production trough from 97/98 - 01/02, a full four-year drag provides the best example of this with 98/99 matching that of the worst-case impact caused from direct stress. Similar but less extreme instances are also found in Malaysia with average yield loss .170 MT/Ha a year after a strong event.

	Production			Yield		
Year	Malaysia	Indonesia	Combined	Malaysia	Indonesia	Combined
1997/1998	8,508	5,000	13,508	3.39	2.42	2.95
1998/1999	9,758	5,800	15,558	3.7	2.42	3.09
1999/2000	10,491	7,200	17,691	3.67	2.86	3.29
2000/2001	11,937	8,300	20,237	4.06	2.81	3.43
2001/2002	11,858	9,200	21,058	3.95	2.78	3.34

VS Base Line		
Malaysia	Indonesia	Combined
-0.41	-0.84	-0.56
-0.10	-0.84	-0.42
-0.13	-0.40	-0.22
0.26	-0.45	-0.08
0.15	-0.48	-0.18

Source: USDA FAS PS&D.

Yield evidence across El Niño episodes:

Data from 52 marketing years reveals a clear non-linear relationship from El Niño intensity and yield:

Scenario / Event Type:	Obs #	Malaysia Yield (MT/Ha)	Indonesia Yield (MT/Ha)	Combined (MT/Ha)	Malaysia Yield vs Long-run Avg (MT/Ha)	Indonesia Yield vs Long-run Avg (MT/Ha)	Cumulative Yield vs Long-run Avg (MT/Ha)
Long-run average (all years)	52	3.795	3.258	3.512	0.000	0.000	0.000
USDA 26/27 Estimate	-	3.470	3.390	3.415	-0.325	0.132	-0.097
All El Niño years (avg)	17	3.770	3.205	3.477	-0.025	-0.052	-0.035
Year after El Niño years (avg)	17	3.771	3.172	3.466	-0.024	-0.085	-0.046
Strong El Niño years (avg)	6	3.525	3.047	3.292	-0.270	-0.211	-0.220
Year after Strong El Niño years (avg)	6	3.625	3.202	3.400	-0.170	-0.056	-0.111
El Niño Years Excluding Strong (avg)	11	3.904	3.292	3.577	0.108	0.034	0.066
1997/98 (strongest on record)	1	3.390	2.420	3.261	-0.405	-0.838	-0.563
2015/16 (2nd strongest)	1	3.690	3.110	3.291	-0.105	-0.148	-0.220
2023/24 (most recent)	1	3.550	3.190	3.292	-0.245	-0.068	-0.220

Source: USDA FAS PS&D.

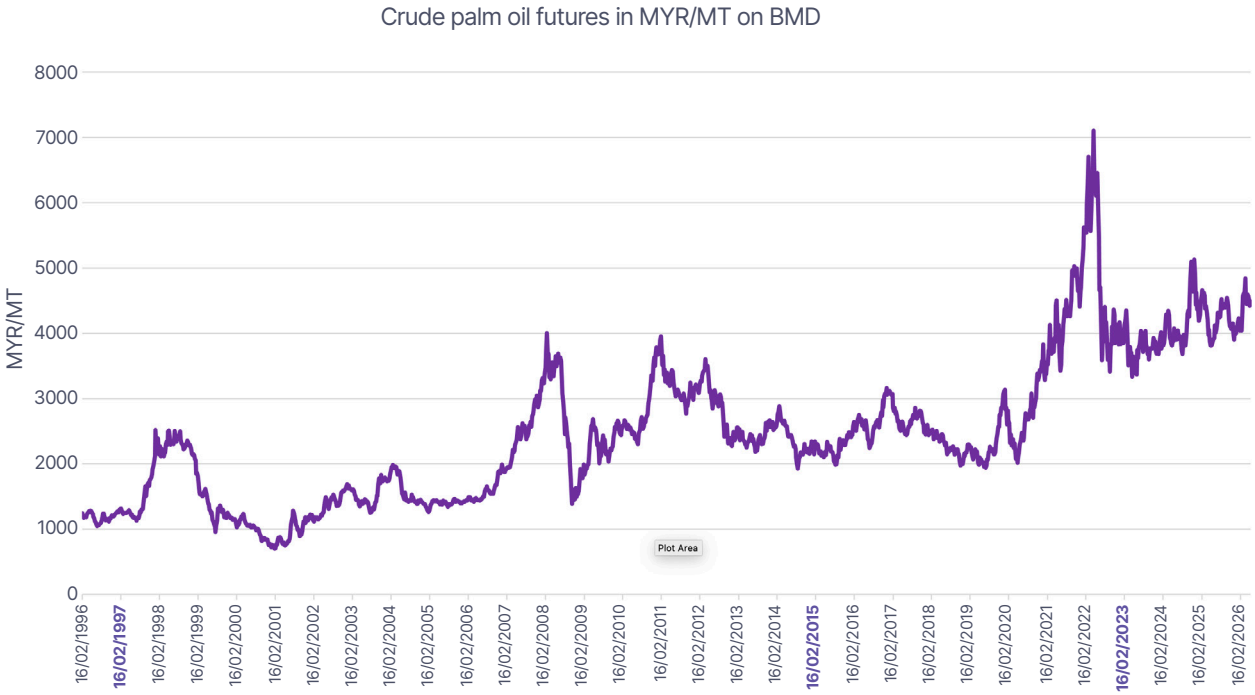
Scenario / Event Type:	Malaysia Output (1000 MT)	Indonesia Output (1000 MT)	Combined Output (1000 MT)	Difference vs USDA (1000 MT)	Malaysia 26/27 S2U	Indonesia 26/27 S2U	Combined 26/27 S2U	Global 26/27 S2U
Long-run average (all years)	21444	45605	69004	1904	21.4%	5.4%	13.1%	13.5%
USDA 26/27 Estimate	19600	47500	67100	0	12.2%	9.4%	10.2%	12.0%
Non El Niño years (avg)	21514	45960	69339	2239	21.8%	6.2%	13.6%	13.7%
All El Niño years (avg)	21301	44874	68316	1216	20.7%	3.9%	12.0%	12.9%
Strong El Niño years (avg)	19916	42653	64690	-2410	13.8%	-0.8%	6.7%	10.0%
Year after El Niño years (avg)	21307	44413	68105	1005	20.7%	2.9%	11.7%	12.8%
Year after Strong El Niño years (avg)	20481	44823	66815	-285	16.6%	3.8%	9.8%	11.7%
El Niño Years Excluding Strong (avg)	22056	46085	70294	3194	24.5%	6.4%	15.0%	14.5%
1997/98 (strongest on record)	19154	33880	64079	-3021	10.0%	-19.3%	5.8%	9.5%
2015/16 (2nd strongest)	20849	43540	64676	-2424	18.5%	1.1%	6.7%	10.0%
2023/24 (most recent)	20058	44660	64685	-2415	14.5%	3.4%	6.7%	10.0%

Strong El Niño years (82/83, 87/88, 91/92, 97/98, 15/16, 23/24).

Non-Strong El Niño years (76/77, 77/78, 79/80, 86/87, 94/95, 02/03, 04/05, 06/07, 09/10, 14/15, 18/19.

Source: USDA FAS PS&D.

How El Niño impacts yields:

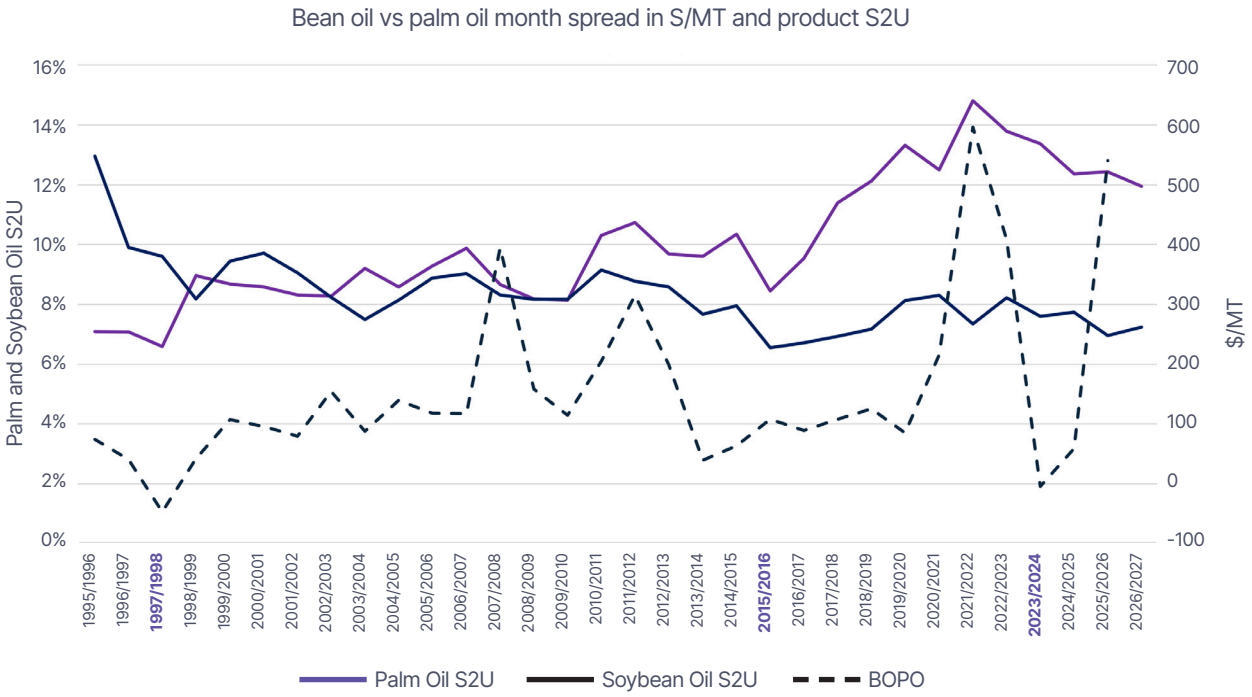


Sources: Bursa Malaysia FCPO; Bloomberg.

Price response to El Niño is typically characterized by delay, for reasons mirroring the physiological supply side lag. Inventories provide a buffer in the immediate impact year but a drawdown in those stocks, compounded by a multi-year recovery in yields, drive a more sustained price response. Several historical episodes illustrate this pattern, where 97/98 saw prices rally from 1167 MYR/MT in 97 to a 2520 MYR/MT high in 98. 15/16 saw prices move from a 2031 MYR/MT 15 low to a 3161 MYR/MT high in 16. Whereas by 23/24 the market looks to have overly anticipated the event with prices crashing from 7104 MYR/MT in 22 to a low of 3308 MYR/MT in 23, although it rallied back up to 5101 MYR/MT in 24.

Substitutes and BOPO:

Soybean and palm oil dominate the vegetable oil market, accounting for 63% of domestic feed consumption and 68% of global exports combined. Given their similar functional properties, (neutral flavor profiles, shelf stability, caloric content and scalability), price premiums in one oil versus the other often drive substitution in demand. The bean oil (BO2) – palm oil (KO2) in USD spread ("BOPO") is tradeable and a good gauge of the attractiveness of switching, currently +540.66, as shown below:



Sources: Bloomberg, Bursa Malaysia FCPO; RBD Palm Olein Futures.

The USDA has 26/27 bean oil demand effectively flat (+116K MT) and palm oil demand +1.3% (+692K MT) which is growth of .78% per annum combined versus 3.1% compound growth over the last 3 years.

Given below trend aggregate growth in 26/27, historically low stocks to use ratio in bean oil and historically high bean oil premium, we think has the potential to drive inelastic palm oil demand (if not even greater demand given its superior availability). A set-up which would exacerbate Indonesian El Niño weather risk. Also, if palm oil stocks to use were to correct lower, it may warrant BOPO downside exposure as part of a relative value, mean reversion strategy that works well during El Niño.

Sensitivity to policy risk:

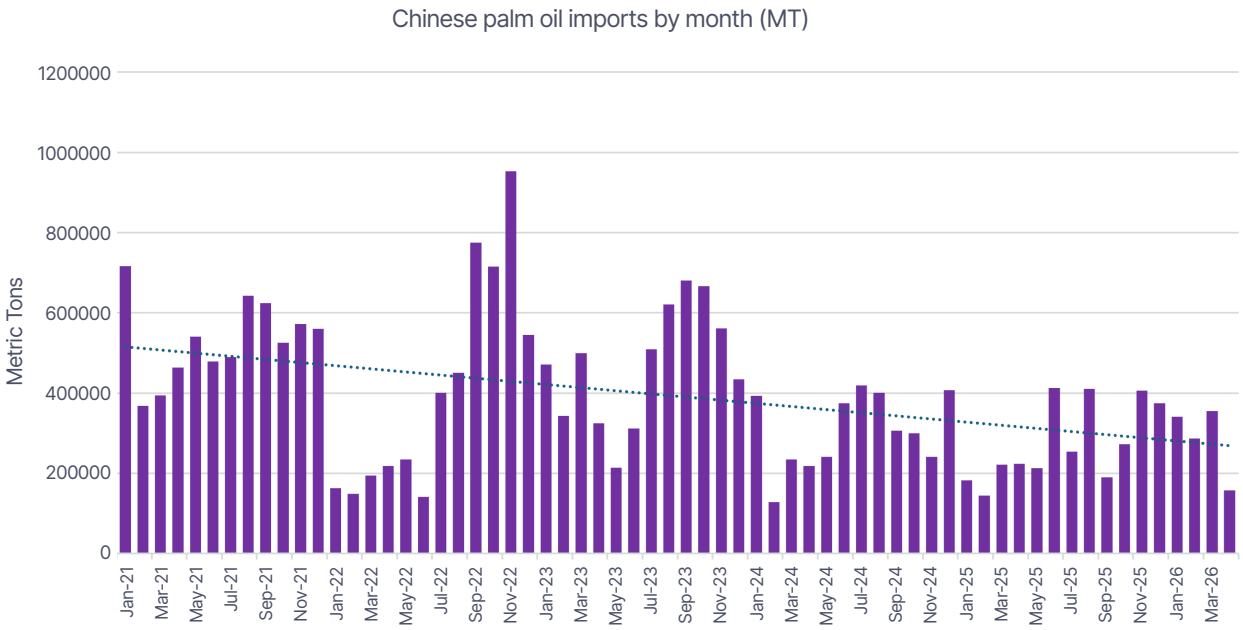
The President of Indonesia, Prabowo Subianto, outlined plans in a May 20 speech to nationalize key export commodities, including palm oil. This is a case in point. The policy aims to improve export valuation transparency and ensure that tax revenues more accurately reflect market conditions, supporting the government's goal of accelerating economic growth from a stagnant 5% to 8%.

Short-run, private exporters have however scaled back local sourcing activity and closed FFB collection points. As a result, the domestic cash basis has weakened sharply, while 30-day historical volatility has risen from a low of 15% to a high of 31% this month. Policy shifts of this nature can create short-term inefficiencies and deadweight losses that weigh on export competitiveness and market functioning.

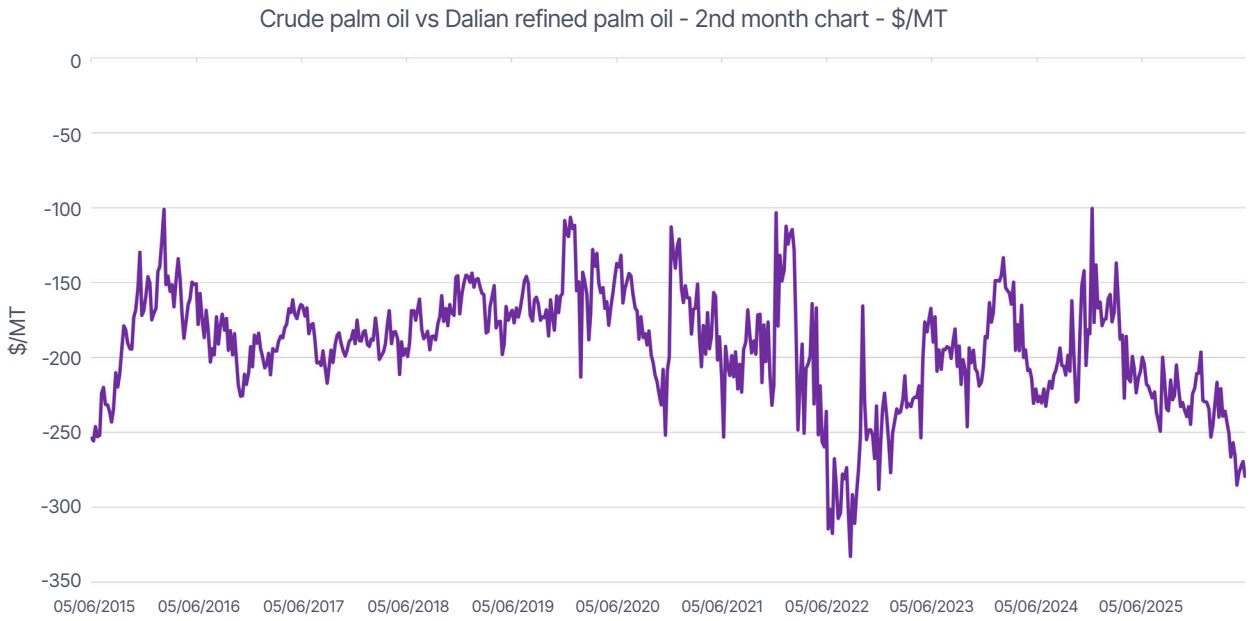
Uncertainty surrounds the B40 mandate too, Indonesia's nationwide biodiesel standard requiring diesel to be blended with 40% palm-based biodiesel, the highest mandatory blending rate globally. The government has repeatedly signalled its intention to move towards B50 to reduce diesel imports and strengthen energy security. In January, palm oil prices fell 7.5% after the B50 rollout was postponed, with markets now expecting implementation from July 2026. The proposal is particularly compelling in an environment of high oil prices. With further growth in domestic consumption likely, Indonesia's biodiesel program has the potential to tighten the global palm oil balance even further.

China:

One input helping keep palm oil prices in check remains weak import demand from China:



Sources: Bloomberg, Bursa Malaysia FCPO; RBD Palm Olein Futures.



Sources: Bloomberg, Bursa Malaysia FCPO; RBD Palm Olein Futures.

April was the lowest monthly imports since February 2025 and 5th lowest since January 2021, the Malaysian palm oil versus Dalian refined palm oil arbitrage is trading 2.2 standard deviations below its historic mean. Part of the reason for this are suppressed bean oil prices in China, trading roughly $440/MT below international Bean oil Prices. This means that some of the demand switching into palm oil you would expect when BOPO is trading near record highs doesn't exist on the mainland. China is the largest bean oil producer in the world and is importing soybeans from the US to crush locally. China's domestic biodiesel sector has also softened on weak export demand and diminished food service activity which is closely linked to consumer health, GDP and disposable income.

Contact

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