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Southern Africa

El Niño-linked drought to cause cereal production declines and spur a surge in import needs

Highlights

- El Niño-linked drought has caused widespread crop damage and wilting in Southern Africa, with 2024 harvests expected at below-average levels.
- Import requirements forecast to increase and supplies likely to be sourced from outside of the Southern African region.
- Acute food insecurity could deteriorate in 2024/25.

El Niño-linked drought to drive down cereal production in 2024

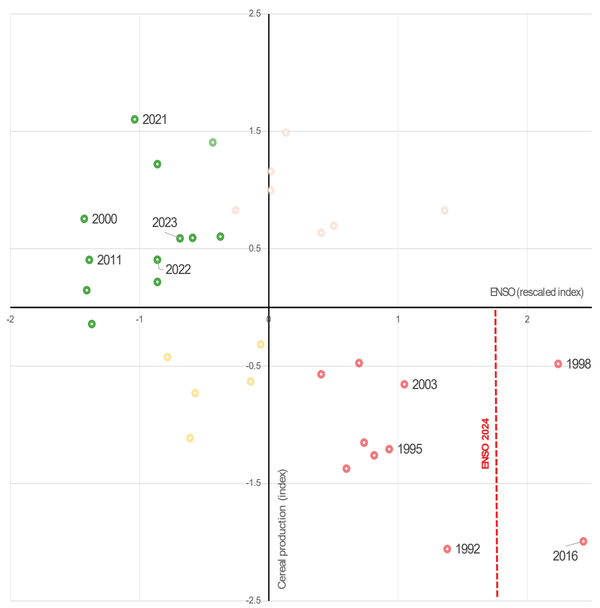
Production prospects for the 2024 cereal crops across Southern Africa have taken a sharp downturn since the beginning of the year. This reflects an extended period of widespread and substantial rainfall deficits in February, exacerbated by record high temperatures, a particularly damaging combination for crops.[i] Considering the harvest period is expected to commence in May, the likelihood of a recovery is negligible. Cereal harvests, predominantly made up of maize, are therefore expected at below-average levels in 2024, with several areas likely to experience extensive crop failures. Drought emergencies have already been declared by the governments of Malawi, Zambia and Zimbabwe.

This production outlook mirrors past occurrences of El Niño events. As illustrated in Figure 1, subregional production levels broadly align to the El Niño-Southern Oscillation (ENSO) values,[ii] a metric used to determine both El Niño and La Niña phases. Positive and high values of ENSO (El Niño phases) are generally associated with below-average rainfall amounts over Southern Africa and, consequently, cereal harvests at the subregional level tend to be low. These outcomes are depicted by the red cluster of years, with notably acute impacts on cereal production in 1992 and 2016. By contrast, when ENSO values are negative and low (La Niña phases), rainfall is generally plentiful, typically resulting in ample harvests. These years are shown by the dark green cluster, with the recent three-year La Niña phase (2021–2023) engendering generally good harvests across the subregion. When ENSO values are closer to neutral, there is no clear trend in production outcomes (yellow and orange clusters). The current ENSO value in 2024 falls along the red dotted line, and a production outcome among the red cluster is most likely.

Yield forecast estimates as of early April 2024 (Map 1), generated by NASA Harvest[iii] using the Machine Learning and Remote sensing-based Global Earth Observations for Crop Inventory Forecasting (GEOCIF) model,[iv, v] corroborate and underlie this outlook. The results from the GEOCIF model show a high probability of below-average yields of the key cereal crops in most areas of Southern Africa, including parts of Angola, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe. The predicted yields per region, the median yield from the last five years for which yield has been officially reported, and the anomaly computed as the ratio of predicted to median yield is reported in Annex 1.

Figure 1: El Niño-related weather trends generally result in reduced cereal production, with a below-average harvest also anticipated in 2024

Clustering of Southern African cereal production and ENSO values



Note: To illustrate the association between ENSO and cereal production in Southern Africa (1990–2023), the above figure depicts four year groups based on unsupervised k-means clustering. The red group depicts years of high ENSO values (generally El Niño phases) and low production, with the 2024 outcome expected to fall within the red cluster. The green group are years with good production levels and low ENSO values (generally La Niña phases). The two other groups (light yellow and orange) mostly show years when ENSO values are closer to neutral, with no clear trend in production outcomes. Both cereal production (detrended) and ENSO values have been rescaled for the cluster analysis.

Source: Author's own elaboration based on data from the National Oceanic and Atmospheric Administration (NOAA) and Food and Agriculture Organization of the United Nations (FAO), 2024.

Cereal import requirements to increase in 2024/25 and white maize likely to be sourced from outside of Southern Africa

Under the current poor production outlook, while awaiting firmer results and official harvest estimates from ongoing field assessments, cereal imports are expected to increase significantly in the 2024/25 marketing year (generally April/March) in order to maintain stable consumption levels. Among the individual cereal commodities, imports of white maize, the primary traded grain in the subregion, are forecast to grow the steepest. This outlook is underpinned by maize's paramount importance in Southern African diets and in rainfed agricultural systems.

Moreover, the aggregate stocks-to-use ratio for maize,[1] excluding South Africa and Zambia the two main maize exporters, is estimated to be at a below-average level in 2024/25 (Figure 2). This infers reduced domestic supply capacity to bridge the expected shortfalls in 2024 production and further reinforces the need for large import volumes in 2024/25. The most significant increase in maize import requirements is foreseen in Zimbabwe, where a precipitous drop in production is likely. Imports are also forecast to rise markedly in Malawi and Mozambique.

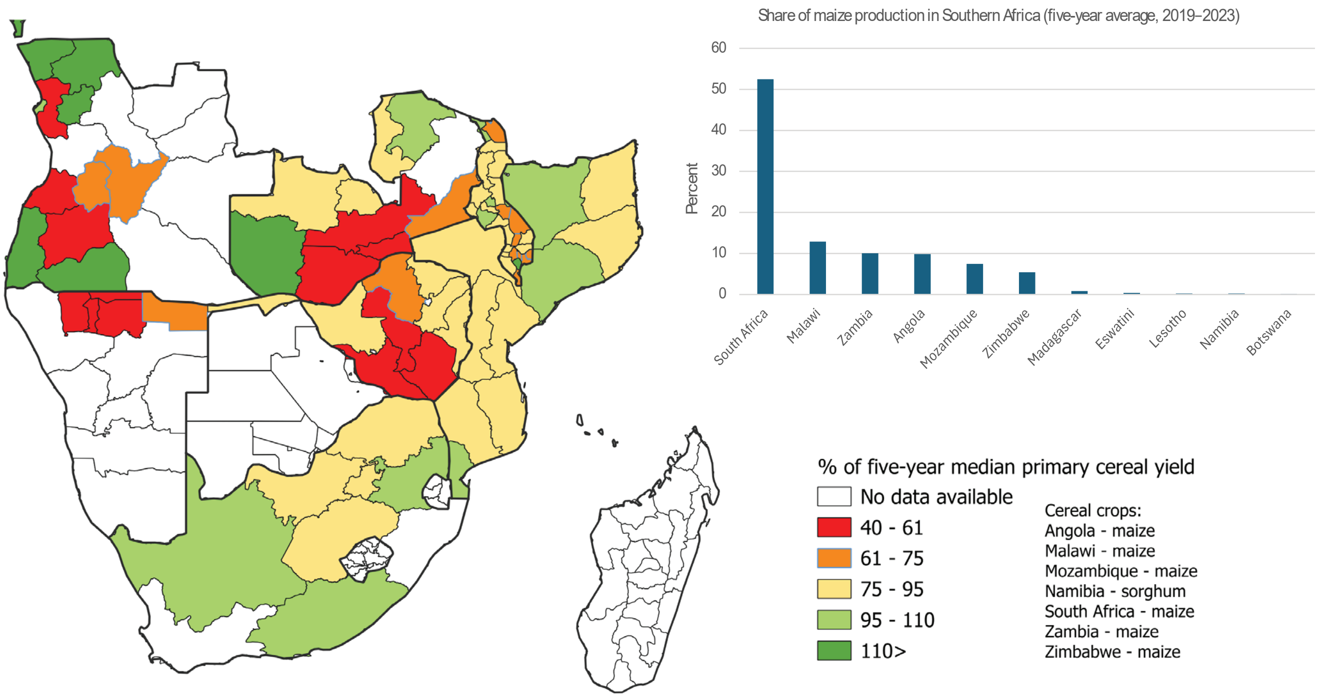
Concurrently, exportable supplies of white maize are forecast to decline in Southern Africa in 2024/25. In most years, white maize supplies from South Africa and Zambia have been more than sufficient to meet the import demand of neighbouring countries. However, based on current supply and demand projections in South Africa for 2024/25, white maize exports are expected to fall short of the recent five-year average and concerningly to a level below the quantity imported by neighbouring Southern African countries in 2023/24. In Zambia, maize production is not likely to be sufficient to enable the country to export any maize grain in 2024/25. As a result, there is a high likelihood that imports needed to cover domestic consumption will have to be sourced from outside the subregion. Low cereal outturns in South Africa and Zambia may also affect the subregional availability of maize seeds for the subsequent agricultural cropping season, starting in September 2024.

The previous period when substantial maize quantities were imported into Southern Africa was in 2016/17, also following an El Niño-affected harvest. During this period, nearly 650 000 tonnes of white maize were sourced from Mexico and the United States of America. In these two countries, planting of the 2024/25 main maize crops is underway and early data from the United States

[1] Stocks-to-use ratio is defined as the ratio of maize stocks to domestic utilization.

Map 1: Yields of primary cereal crops forecast to drop to below-average levels in 2024

Predicted 2024 cereal yields from NASA Harvest GEOCIF model, April 2024

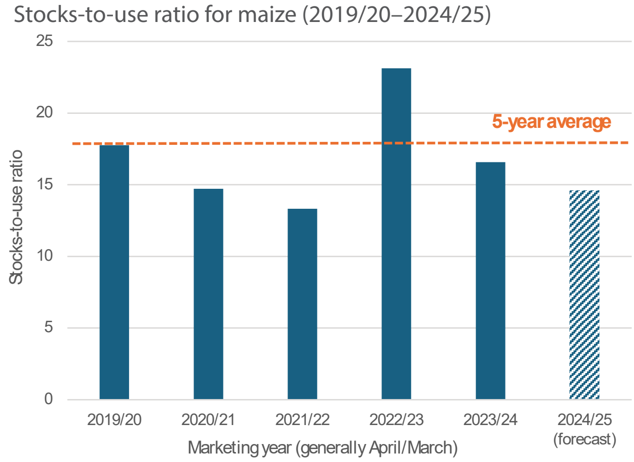


Disclaimer: The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

Source: Authors' own elaboration based on data from NASA Harvest, April 2024. Map modified to comply with the United Nations map No. 4045, Rev. 9, 2022.

Figure 2: Reduced stocks-to-use ratio infer less supply capacity to respond to shortfalls in production

Stocks-to-use ratio for maize (2019/20–2024/25)



Note: The data excludes South Africa and Zambia, the two main net-exporting countries.

Source: Author's own elaboration based on data from the FAO Global Information and Early Warning System on Food and Agriculture (GIEWS). 2024.

of America points to a 5 percent pullback in the area sown compared to the previous year, whilst poor weather conditions are impairing production prospects in Mexico. These outlooks could pose challenges for Southern African countries to import adequate quantities of white maize. Other sources of white maize could be found in East Africa, specifically in Kenya where El Niño-associated weather conditions are bolstering harvest expectations in 2024, as well as in South America, where current forecasts point to an above-average outturn. Given the potential shortages of white maize supplies to meet the foreseen hike in import demand in 2024/25, Southern African countries may need to transition to alternative grains to satisfy consumption needs.

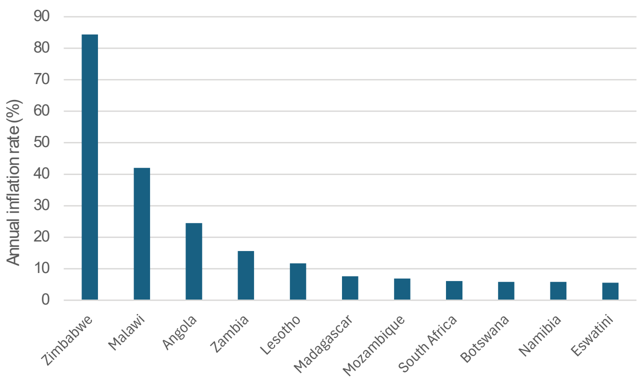
A potential further concern arises from the logistical challenges that are affecting seaports in South Africa (a key transit point for imports into the subregion) that have impacted trade operations in recent years.[vi]

Price hikes anticipated in 2024

In addition to availability concerns for maize, food prices in most countries have risen considerably year-on-year due to a combination of economic and agricultural-related factors. Double-digit food inflation rates have persisted in most countries throughout 2023[vii] and the expected decline in agricultural production in 2024 is foreseen to exert additional upward pressure on domestic food prices (Figure 3). Regarding maize, which accounts for about one-fifth of the average person's calorie intake in Southern Africa,[viii] prices have hit multiple record highs in Malawi, Zambia and Zimbabwe during the first months of 2024. Given the importance of maize in diets, populations are highly vulnerable to price hikes of this cereal staple, and the current high levels are already having negative consequences on households' consumption.

Figure 3: Food prices have been increasing steeply

Annual food inflation rates as of February 2024



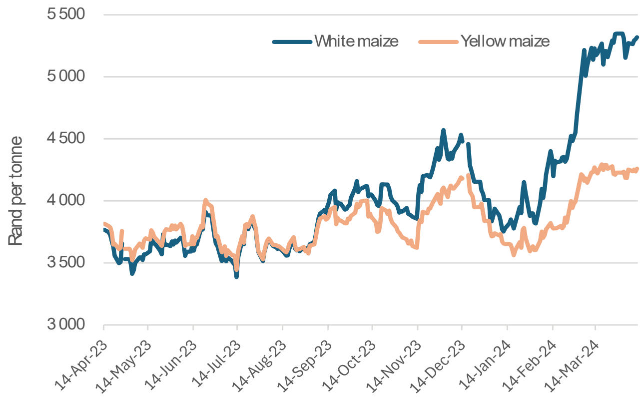
Source: Author's own elaboration based on data from the International Monetary Fund (IMF), 2024.

Import costs are also expected to be elevated in 2024/25, which could further push up domestic maize prices. This, in part, reflects a surge in wholesale maize grain prices in South Africa, where markets reacted to the harsh drought conditions on crops and white maize prices rose by 33 percent between January and March 2024, reaching near-record levels (Figure 4).

Given the dominant position of South Africa in the subregion's maize market, these high price levels are likely to be transferred to net importing countries.[ix] However, the rate and speed of transmission would be dependent on several factors, including policies and logistical structures. An additional key factor that is already pushing up import costs and fueling higher inflation rates is the prevailing weakness of most national currencies against the United States dollar, notably in Angola, Malawi and Zambia (Figure 5). A further financial concern that may exacerbate the situation is the shortage of foreign currency reserves in several countries, notably in Malawi and Zimbabwe, which could undermine national capacities to import.

Figure 4: South African white maize prices surged since February 2024 as markets reacted to drought

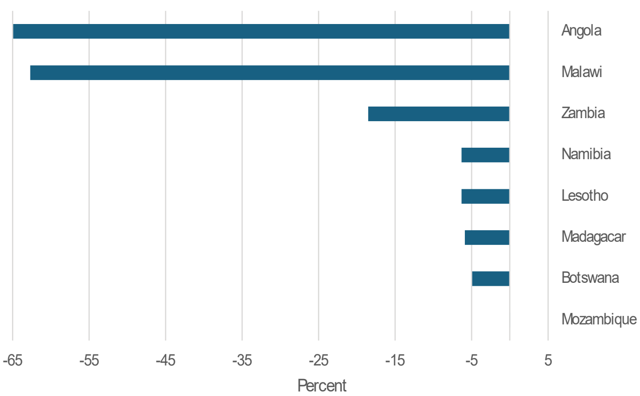
Daily wholesale prices of South African maize grain, April 2023–April 2024



Source: Author's own elaboration based on data from the Grain SA, 2024.

Figure 5: Currency weakness is inflating import costs and pushing up domestic food prices

Year-on-year variation in national exchange rates against United States dollar as of February 2024



Source: Author's own elaboration based on data from the International Monetary Fund (IMF), 2024.

Acute food insecurity could deteriorate in 2024/25

Food insecurity across the subregion could deteriorate in 2024/25 due to the impact of the El Niño-related drought. Concerns primarily relate to the effects of a sharp decline in agricultural production on households' food availability, considering the almost ubiquitous dependence on rainfed agriculture, and on food access, reflecting the confluence of income losses from reduced crop sales and expected supply-driven price hikes. This combined impact is expected to increase households' reliance on markets as a source of food, imposing significant financial strains, especially where poverty levels are persistently high. Notably, food already accounts for more than 50 percent of an average households' budget in most Southern African countries, underscoring the severity of the impending shock.

During the January to March 2024 period, the aggregate number of people facing acute food insecurity, excluding Angola (no data available) and South Africa, was already estimated at 16 million,[2, x] one of the highest levels on record. This figure could increase further in 2024/25. There are particular concerns for households with low incomes and those in areas that have experienced multiple weather shocks in recent years, such as parts of Malawi and Madagascar, and in central Mozambique, where resilience to shocks has been significantly eroded.

Next steps to assess and respond

FAO is supporting governments across Southern Africa to conduct agricultural and livelihood assessments to quantify the impact of the drought in the agriculture sector.[xi] The timely availability of this information will inform policy responses to address the impacts on food security and aid in the design of early agricultural interventions. Looking further ahead, current forecasts point to a high likelihood of a transition to a La Niña phase in the second half of 2024, which would be expected to support a recovery of the agriculture sector. In this context, support for resilience building initiatives and provision of emergency agricultural assistance is imperative. This would help to promote a recovery and bolster the capacity of agricultural households to withstand future shocks.

[2] This number is based on IPC assessments, except for Botswana and Zimbabwe which have been taken from national vulnerability assessment committee reports.

ANNEX 1

Table A1: Crop yield predictions from NASA Harvest GEOCIF model

Country	Region	Crop	Predicted yields for 2024 crops (tonnes/hectare)	Five-year median yields (tonnes/hectare)	2024 yield vs five-year median (percent)
Angola	Bengo	Maize	0.36	0.59	60.3
Angola	Benguela	Maize	0.36	0.64	56.9
Angola	Bie	Maize	0.87	1.20	72.5
Angola	Cabinda	Maize	0.45	0.35	127.3
Angola	Cunene	Maize	0.37	0.19	193.7
Angola	Huambo	Maize	0.85	1.18	72.1
Angola	Huila	Maize	0.27	0.56	48.6
Angola	Kuanza Norte	Maize	0.83	0.72	114.8
Angola	Luanda	Maize	0.77	0.77	99.9
Angola	Namibe	Maize	0.43	0.36	118.3
Angola	Uige	Maize	1.17	0.82	142.3
Angola	Zaire	Maize	0.84	0.67	125.7
Malawi	Balaka	Maize	0.78	1.08	72.2
Malawi	Blantyre	Maize	1.94	2.67	72.6
Malawi	Chikwawa	Maize	1.13	1.33	84.9
Malawi	Chiradzulu	Maize	1.47	2.05	71.8
Malawi	Chitipa	Maize	3.33	3.34	99.7
Malawi	Dedza	Maize	1.73	2.14	80.7
Malawi	Dowa	Maize	1.83	2.23	81.8
Malawi	Karonga	Maize	1.62	2.16	74.8
Malawi	Kasungu	Maize	2.60	2.92	89.1
Malawi	Lilongwe	Maize	2.43	2.32	104.5
Malawi	Machinga	Maize	0.98	1.23	79.9
Malawi	Mangochi	Maize	0.74	1.08	68.8
Malawi	Mchinji	Maize	2.24	2.57	87.0
Malawi	Mulanje	Maize	1.55	2.10	73.9
Malawi	Mwanza	Maize	2.21	2.69	82.1
Malawi	Mzimba	Maize	1.74	1.90	91.4
Malawi	Neno	Maize	1.75	1.91	91.6
Malawi	Nkhata Bay	Maize	1.66	1.96	84.6
Malawi	Nkhotakota	Maize	2.58	2.97	87.0
Malawi	Nsanje	Maize	1.19	1.94	61.1
Malawi	Ntcheu	Maize	1.17	1.46	79.9
Malawi	Ntchisi	Maize	3.53	3.67	96.0
Malawi	Phalombe	Maize	1.99	2.82	70.5
Malawi	Rumphi	Maize	2.81	3.06	91.8
Malawi	Salima	Maize	1.41	1.96	72.1
Malawi	Thyolo	Maize	2.48	2.24	110.6

Table A1: Crop yield predictions from NASA Harvest GEOCIF model (*Cont'*)

Country	Region	Crop	Predicted yields for 2024 crops (tonnes/hectare)	Five-year median yields (tonnes/hectare)	2024 yield vs five-year median (percent)
Malawi	Zomba	Maize	1.26	1.56	80.4
Mozambique	Cabo Delgado	Maize	0.69	0.83	82.7
Mozambique	Gaza	Maize	0.41	0.46	87.7
Mozambique	Inhambane	Maize	0.37	0.43	86.4
Mozambique	Manica	Maize	0.95	1.01	94.1
Mozambique	Maputo	Maize	0.61	0.57	106.9
Mozambique	Nampula	Maize	0.73	0.94	77.7
Mozambique	Niassa	Maize	1.11	1.06	104.2
Mozambique	Sofala	Maize	0.74	0.80	93.0
Mozambique	Tete	Maize	0.92	1.15	80.1
Mozambique	Zambezia	Maize	0.78	0.81	96.4
Namibia	Caprivi	Sorghum	0.16	0.21	75.5
Namibia	Kavango	Sorghum	0.15	0.24	61.8
Namibia	Ohangwena	Sorghum	0.16	0.26	59.0
Namibia	Omusati	Sorghum	0.11	0.20	53.9
Namibia	Oshana	Sorghum	0.16	0.33	50.3
Namibia	Oshikoto	Sorghum	0.23	0.47	47.8
South Africa	Eastern Cape	Maize	6.82	6.88	99.2
South Africa	Free State	Maize	4.10	5.21	78.7
South Africa	Gauteng	Maize	5.58	5.98	93.4
South Africa	Limpopo	Maize	6.58	7.18	91.6
South Africa	Mpumalanga	Maize	6.06	6.28	96.6
South Africa	North West	Maize	3.63	4.62	78.6
South Africa	Northern Cape	Maize	14.50	14.80	97.9
Zambia	Central	Maize	1.27	2.10	60.5
Zambia	Copperbelt	Maize	1.90	2.50	76.2
Zambia	Eastern	Maize	1.26	1.70	73.8
Zambia	Luapula	Maize	2.40	2.90	82.7
Zambia	Lusaka	Maize	1.46	2.40	60.8
Zambia	Northern	Maize	2.60	2.60	99.8
Zambia	North-Western	Maize	2.26	2.60	86.9
Zambia	Southern	Maize	0.80	1.50	53.4
Zambia	Western	Maize	0.90	0.80	112.5
Zimbabwe	Manicaland	Maize	0.49	0.57	85.9
Zimbabwe	Mashonaland Central	Maize	1.20	1.57	76.5
Zimbabwe	Mashonaland East	Maize	0.59	0.74	79.0
Zimbabwe	Mashonaland West	Maize	0.96	1.55	61.6
Zimbabwe	Masvingo	Maize	0.22	0.39	55.7
Zimbabwe	Matabeleland North	Maize	0.20	0.23	86.5
Zimbabwe	Matabeleland South	Maize	0.18	0.32	54.6
Zimbabwe	Midlands	Maize	0.19	0.42	44.5

Source: Author's own elaboration based on data from the NASA Harvest, 2024.

Notes

i. **Harrison L., Funk Ch., Turner W., Magadzire T., Hoell A., Peterson P., Shukla S., Mogane P. and Husak G.** 2024. Southern Africa hit with driest February on record in central areas. Climate Hazards Center. Cited April 2024. https://blog.chc.ucsb.edu/?p=1375.

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xi. **FAO**. 2021. *FAO's Damage and Loss Assessment methodology to monitor the Sendai Framework's Indicator C2 and the Enhanced Transparency Framework (ETF)*. 16 April 2021. Rome. https://www.fao.org/documents/card/en/c/cb4265en.

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