

El Nino uncertainty in 2019

In his latest newsletter on climate and agricultural conditions, Johan van den Berg of Santam Agriculture says there is positive news for rainfall conditions, at least during February, for most of the summer rainfall area.



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Current conditions

Extremely high temperatures with heat wave conditions continued to occur over large parts of the country. During the past two weeks, there has been isolated rainfall with hail in Mpumalanga, KwaZulu-Natal, Limpopo and parts of the eastern Free State. Hail has caused the most severe hail damage in the last ten years.

Extreme heat is putting pressure on summer crops planted in the central to western parts, especially on the young plants of very late planted crops. The very hot and dry conditions have prevented the planting of sunflower seed. It is now too late to plant sunflower because the last acceptable planting dates are towards the third week of January in the western production areas.

Poor grazing conditions, very low meat prices and a lack of demand are creating disastrous conditions for many livestock farmers, especially in the central and western parts of the country and most of Namibia.

El Nino and the Indian Ocean

El Nino conditions have weakened rapidly since the second half of December and are now in the neutral range, or just outside the neutral range. The average sea surface temperatures in the important Nino3.4-area were 0.5°C warmer than normal in the third week of January. This is a borderline neutral condition.

The Southern Oscillation Index (SOI) also remained neutral to La Nina in the past few months, while not reflecting El Nino conditions. On the other hand, the serious flooding in the southern parts of South America is typically El Nino associated.

Some rewarming is taking place in the central to eastern (Australian west coast) the Indian Ocean but there has been cooling over the western Indian Ocean (near Madagascar) which is good news. The Indian Ocean Dipole Index (IOD) is also now in the neutral range.

Expected rainfall and temperature conditions

Short- to medium-term rainfall probabilities have now started to reflect the effect of the neutral conditions in the Nino areas with improved rainfall probabilities over most of the summer rainfall area. February and March are historically the dominant rainfall months for the central to western parts of the country and it seems this is highly probable.

There is now a sharp positive change in the outlook for the rest of the summer season with improved probabilities for rainfall:

Western parts of the country (roughly to the west of the N1), excluding the far southwestern parts of the Northern Cape:

- Average rainfall for February with continued dry conditions in the last part of the season due to some remnant effects of the weak El Nino-conditions that occurred (30% probability).
- Neutral Nino and Indian Ocean conditions dominating with average to above average rainfall for the rest of the season (70% probability).
- Uncertainty as to whether the drought-stricken southwestern parts of the Northern Cape and adjacent Western Cape will benefit from the improved prospects for rain for the rest of the summer rainfall area.

Eastern parts (east of N1):

- Average to above average rainfall for the rest of the season until the end of March (70% probability).
- Below average rainfall for February and March (30% probability).

Frost and heat units

There is about a 40% probability for light frost in the Northwest Free State (Bothaville) before 10 April and a 20% to 30% probability for moderate to severe frost between 20 April and 30 April. The risk is much lower towards the northwestern production areas (Lichtenburg) where there is only about a 10% probability for moderate to severe frost before 30 April. Frost occurred as early as 20 March in 2007 but as late as the end of May in 2016.

With the better rainfall conditions expected in February and even March, the risk of frost is smaller. On the other hand, rain and fewer heat units can be responsible for a lower growth rate that can have consequences for the very late planted crop. If minimum temperatures drop below 10°C then the growth rate of a crop like maize decreases rapidly. Analysing minimum temperatures, the following areas can expect lower growth rates from the following dates:

Although frost dates may be late, the effect of a lower growth rate is important. For a place like Bothaville, the average date

when minimum temperatures of below 10°C occur for more than 10 consecutive days is about 20 April, with the earliest date about 5 April. With planting dates in early January, it is evident that the growth rate will decrease before the end of the development cycle of about 120 days and before the end of April for Bothaville.

Winter rainfall areas

With improved rainfall conditions over the summer rainfall area, it is likely that there will be less possibility of rain over the southwestern Cape, but rain is still expected over the Southern Cape and the Eastern Cape from summer rainfall systems.

Namibia

The same scenarios apply for Namibia as for the western parts of South Africa. The outlook for rain has improved for the central to northern parts compared to previous forecasts. The southern and southwestern parts of Namibia may be added to the western parts of the Northern Cape where prospects for rain in the coming months are poor.

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