

**National Agro-meteorological Committee (NAC) Advisory on the
 2024 winter season
 Statement from Climate Change and Disaster Risk Reduction
 10 DALRRD 2023**

8 July 2024

Considering the seasonal climate watch as produced by the South African Weather Service (SAWS), the following advisory guidelines are suggested. It is emphasized that these advisories are broad guidelines and should be interpreted considering the local aspects of the region such as soil types, cultural preferences, and farming systems. Depending on the region, the prioritization of the guidelines will differ. The basic strategy to follow would be to minimize and diversify risk, optimize soil water availability and to manage the renewable resources (rainwater and grazing) to uphold sound farming objectives. Long-term mitigation strategies should be considered by implementing techniques to enhance in-field water harvesting by reducing run-off and improving infiltration. Reduced tillage methods are very important in this regard, as is basin tillage, to capture rainwater in the drier areas. **The provinces should further simplify, downscale and package the information according to their language preference and if possible, use local media and farmers' days to disseminate the information. Users are advised to be on the look-out and act on the daily extreme weather warnings as well as the monthly advisory.**

I. CURRENT CONDITIONS

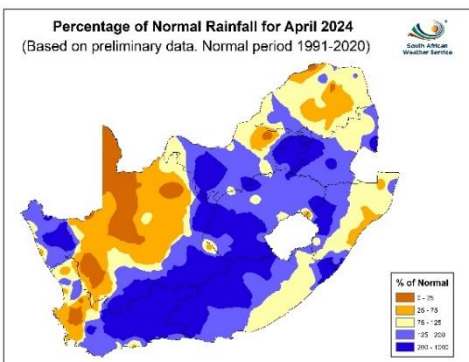


Figure 1

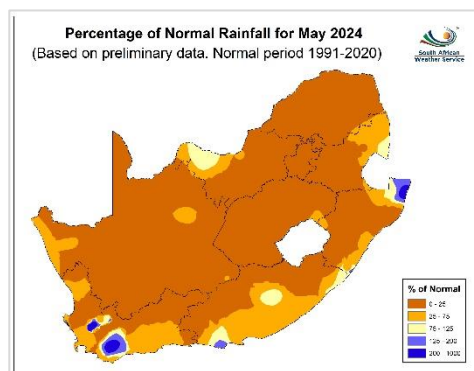


Figure 2

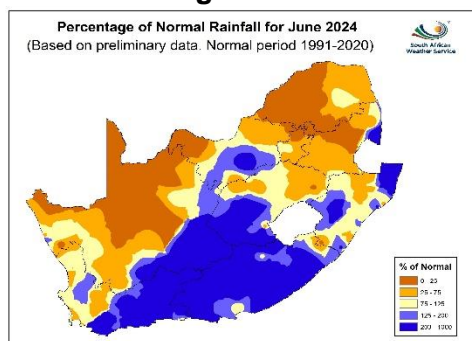


Figure 3

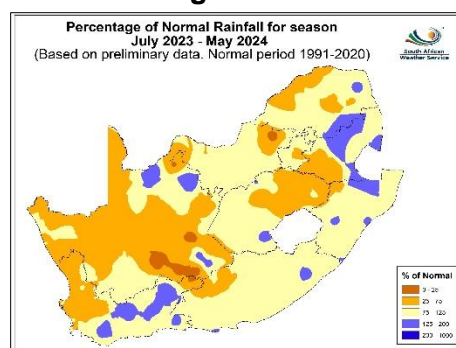
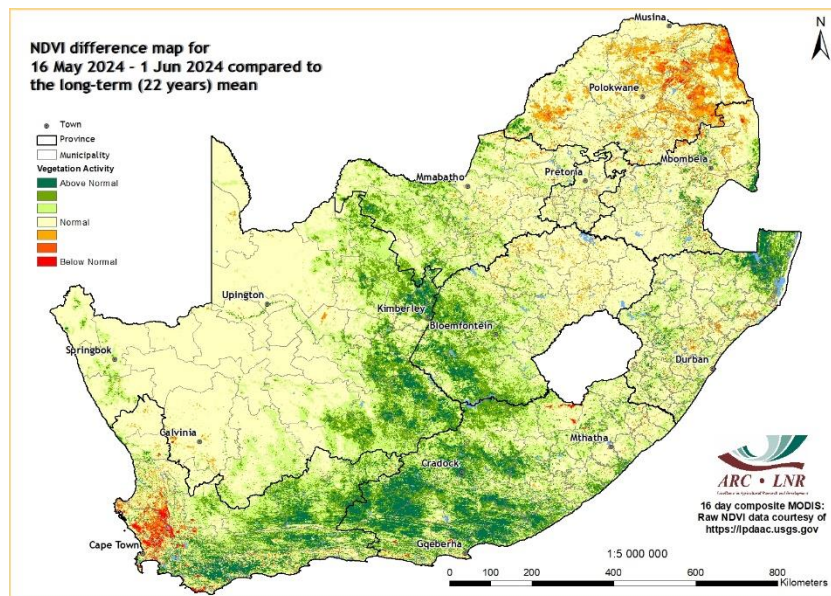


Figure 4

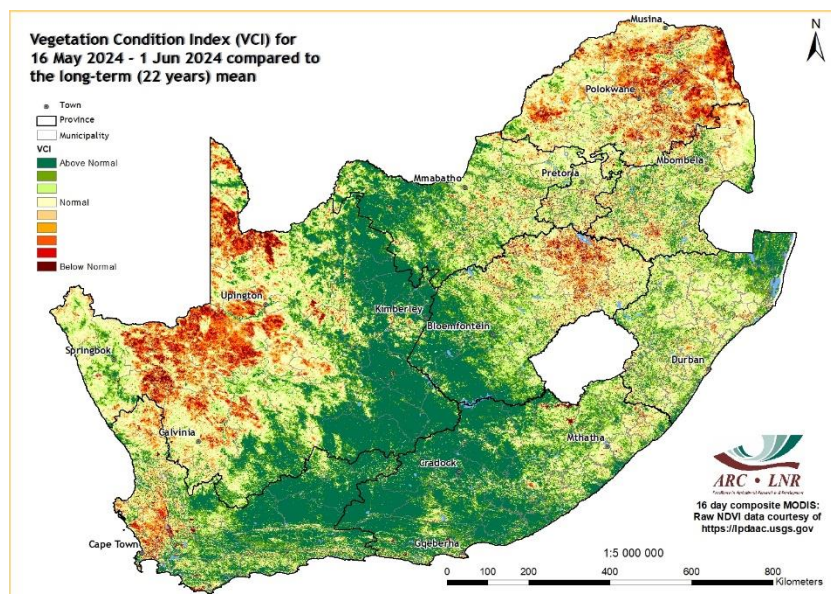
During April, above-normal rainfall was received over the central parts of the country into the Eastern Cape and Western Cape Provinces (**Figure 1**). However, rainfall was near-normal in most of the eastern parts and below-normal in the Northern Cape. The month of May was predominantly dry countrywide (**Figure 2**). In June above-normal rainfall was received in the eastern parts of the Western Cape, the Eastern Cape, south-eastern parts of the Northern Cape, southern Free State and isolated areas in the North West and KwaZulu-Natal Provinces (**Figure 3**). The remainder of the country received predominantly below-normal rainfall. The season July 2023 to May 2024 received near-normal rainfall in many areas but below-normal in the Northern Cape, eastern Free State, south-eastern parts of Mpumalanga and northern Limpopo (**Figure 4**).

NDVI map: 16 May – 1 June 2024 compared to the long-term mean



During the period 16 May to 1 June below-normal vegetation activity is visible in Limpopo and the south-western region of the Western Cape. Some central parts of the country, most of the Western Cape, the Eastern Cape, north-eastern KwaZulu-Natal experienced above-normal vegetation activity.

VCI map: 16 May – 1 June 2024 compared to the long-term mean



The VCI map for 16 May to 1 June shows below-normal vegetation conditions in the central regions of the Northern Cape, south-western parts of the Western Cape, eastern Free State and much of Limpopo. The remainder of the country experienced mostly above-normal vegetation activity.

II. CONDITIONS IN THE PROVINCES DURING MAY/JUNE

Eastern Cape

NIL REPORT.

Free State

Below-normal rainfall was received but above-normal in the south in June. Snow was reported in Bloemfontein, Ficksburg, Tweespruit, Clocolan, Clarens and QwaQwa at the beginning of June. Summer crops have been harvested and soil preparation for winter wheat and forage for feed has started. Winter pastures are in fair condition especially those that are under irrigation. Livestock is in good condition and farmers have been advised to continue providing supplementary feed. There was a small swarm of reddish locusts in Bloemfontein, Glen, and Kelly's view, and it has been controlled. The average level of major dams has decreased (85% in 2024; 99% in 2023).

Gauteng

Below-normal rainfall was received. Incidents of frost burn on vegetables occurred in the City of Tshwane and Rayton in the West Rand. Maize farmers on the other hand began harvesting. Veld conditions have deteriorated due to winter. Livestock is in reasonable condition but good where supplementary feed is provided. There were mortalities of broiler chicks in Tshwane due to very cold conditions. All incidents have been attended to. The average level of major dams decreased to 85% when compared to 99% of 2023 during the same period.

KwaZulu-Natal

Below-normal rainfall was received in May but near-normal in June with patches of above-normal. Summer crops, maize and soya beans have been harvested, the quality and yield are good. Planting of winter crops is taking place. Winter pastures are in good condition; and the veld and livestock are in good condition. 2 tornados occurred in June affecting mostly areas in the eThekweni, Amajuba, and iLembe District Municipalities. The impact of the strong winds in parts of uMkhanyakude, Zululand and King Cetshwayo District Municipalities caused damages to infrastructure. These have resulted in severe damages to poultry infrastructure, crops, and livestock mortalities. However, the greatest impact was on human settlement, leaving many people homeless and there was loss of lives. Assessments have been conducted to determine the extent of damages. Veld fires were reported in several areas and assessments are underway. The average level of major dams is similar (90% in 2024; 91% in 2023).

Limpopo

Below-normal rainfall was received. Farmers under irrigation have planted vegetables while others continued to harvest. Dry land farmers also harvested, and winter crops are growing. Grazing and veld condition in all districts is fair especially in areas that received above-normal rainfall but poor in areas that received below-normal rainfall. The condition of livestock has improved especially in areas where veld has improved. Farmers have been advised to purchase feed to supplement and to destock older animals to prevent production loss in areas where veld conditions did not improve. There was also a report of damages to grazing by veldfire in Vhembe District. Assessments are being conducted to determine the extent of damages. The average level of major dams was at 82% in 2024, as compared to 88% of 2023.

Mpumalanga

NIL REPORT.

Northern Cape

Below-normal rainfall was received but above-normal in June in parts of Frances Baard and Pixley ka Seme. Land preparation for winter crops is complete. The veld is in poor to reasonable condition while livestock is in reasonable condition. The average level of major dams has decreased (64% in 2024; 93% in 2023).

North West

Below-normal rainfall was received with patches of above-normal rainfall in the central regions in June. Harvesting of summer crops is complete. The veld and livestock are in reasonable to poor condition. The average level of major dams has decreased to 74% as compared to 88% of 2023.

Western Cape

The province experienced below-normal rainfall and normal to above-normal temperatures in May. Harvesting of citrus fruit continues. Planting of winter grains began early this year. In the southern Cape sufficient soil moisture has supported the germination of wheat, oats, lupines, and canola. However, in the Swartland, drier conditions have delayed germination, pending the expected winter rains. Natural veld, planted pasture and livestock conditions are good. The average water level in major storage dams stands at 71%, which is lower than the 88% recorded in the previous year during the same period.

Information on level of dams is obtained from the Department of Water and Sanitation

Available: <https://www.dwa.gov.za/Hydrology/Weekly/Province.aspx>

Dam levels as at 01/07/2024

III. AGRICULTURAL MARKETS

Livestock domestic markets

According to ABSA local class A carcass prices have been edging up modestly over the past quarter but have failed to break above the R55.75 level. The view is that this is the result of continued pressure on consumer income. Mutton local carcass prices have been upwards over the past weeks despite continued consumer pressure. This is likely due to increased exports which usually peak during July. Historical seasonal prices suggest that lamb prices could follow an uncertain increase trend over the coming months. Local pork prices have seen modest increases over the past months. It had been expected that pork would have bottomed out in mid-May and for prices to start increasing towards the end of the year. Prices of individually quick frozen (IQF) pieces are under pressure due to lower global poultry prices and a stronger exchange rate. It is expected that chicken prices will trade slightly lower over the coming months. This is largely supported by the views of a stronger currency relative to the corresponding time last year.

Producer prices for selected livestock commodities	Beef	Mutton	Pork	Poultry
Open market: Class A / Porker / Fresh whole birds (R/kg)	55.22	-	31.30	32.37
Open market: Class C / Baconer / Frozen whole birds (R/kg)	43.26	60.05	30.67	35.39
Contract: A2/A3* / IQF (*includes fifth quarter) (R/kg)	55.71	85.33	-	29.36
Weaner Calves / Feeder Lambs (R/kg)	31.97	42.28	-	-

ABSA: 02/07/2024

Major grain commodities

According to ABSA the Crop Estimates Committee (CEC) revised maize production estimates slightly upward in their fifth production estimate compared to the fourth estimate. However, these revisions scarcely impacted the overall estimated production decreases compared to the previous year. White maize production is expected to decrease by 25.4% and yellow maize production by 11.0% compared to the previous season. SAFEX wheat prices have since fallen from the highs seen in May, following global wheat price decreases, easing by 8.2% month-on-month and by 9.9% compared to a year ago. Wheat production conditions are mainly favorable with good rains as well as follow-up rains in the season which further pressured prices. SAFEX soybean prices lost momentum month-on-month, decreasing by 2.3% following the global soybean price declines. SAFEX sunflower seed prices followed a decreasing trend, from the beginning of June, decreasing by 2.7% month-on-month.

Commodity	Future Prices (2024/07/02) R/ton				
	Jul-24	Sep-24	Dec-24	Mar-25	May-25
White maize	5 104.00	5 157.00	5 206.00	4 884.00	4 327.00
Yellow maize	3 806.00	3 902.00	3 988.00	3 952.00	3 782.00
Wheat	6 180.00	6 213.00	6 230.00	6 303.00	n/a
Sunflower	8 770.00	9 000.00	9 288.00	9 100.00	8 638.00
Soybeans	8 865.00	9 034.00	9 223.00	8 959.00	8 300.00

SAGIS 04/07/2024

IV. SADC REGION

The May Famine Early Warning Systems Network (FEWS NET) report states that crop harvests were poor in April and May and as a result this constrained access to food, agricultural labour, and other labour opportunities. This further restricted purchasing ability of households, more so in southern Zimbabwe, Malawi, Mozambique where there is Crisis (IPC Phase 3) outcomes. Conflict in the Democratic Republic of Congo (DRC) and Mozambique maintains the Crisis (IPC Phase 3) outcomes. Humanitarian assistance continues in parts of Cabo Delgado, Mozambique, where Stressed (IPC Phase 2) outcomes are present.

[The Integrated Food Security Phase Classification (IPC) is a set of standardized tools that aims at providing a "common currency" for classifying the severity and magnitude of food insecurity.]

Source: <http://www.fews.net/southern-africa>

Summary of the reports

Above-normal rainfall was received in the southern parts of the country in June accompanied by snow. Summer crops have been harvested and planting has commenced for winter crops. The veld and livestock are in reasonable to poor condition. Livestock is in good condition in areas where supplementary feed is provided. There were veld fires in Limpopo and KwaZulu-Natal in June, and assessments are underway. Very cold conditions caused broiler chicks mortalities in Gauteng. The incident has been attended to. 2 tornadoes occurred in KwaZulu-Natal resulting in extensive damages to agricultural infrastructure, livestock mortalities as well as loss of human lives. Assessments have been conducted to determine the extent of damages. Over SADC poor crop harvests in April and May constrained access to food and labour.

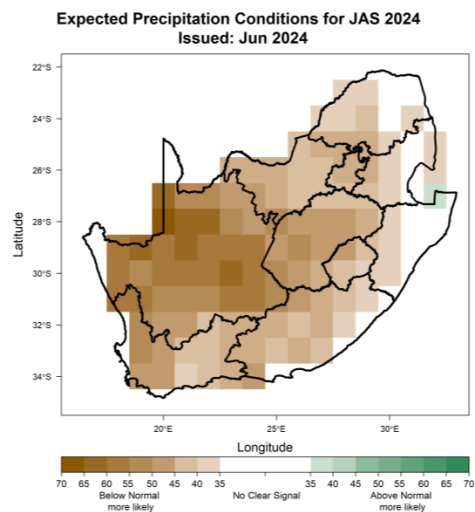
V. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: July to November 2024

State of Climate Drivers

The El Niño-Southern Oscillation (ENSO) is currently still in a Neutral state and is predicted to weaken further. However current predictions are mixed in whether it will weaken towards a La Niña state during our next summer season. It is advised to monitor the ENSO system, as significant changes in the system may occur after the winter period due to increased prediction skill.

Figure 1 – Rainfall



The South African Weather Service (SAWS) multi-model rainfall forecast indicates mostly below-normal rainfall over most of the country during Jul-Aug-Sep (JAS), Aug-Sep-Oct (ASO) and Sep-Oct-Nov (SON).

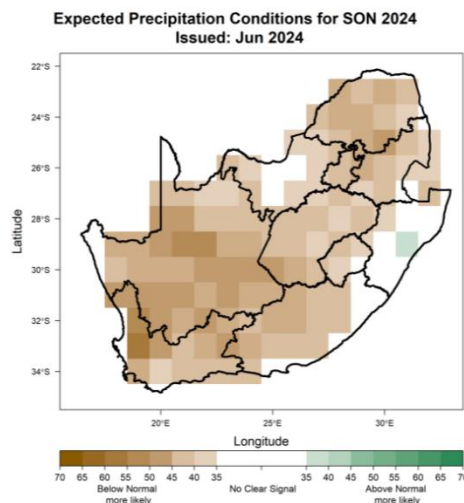
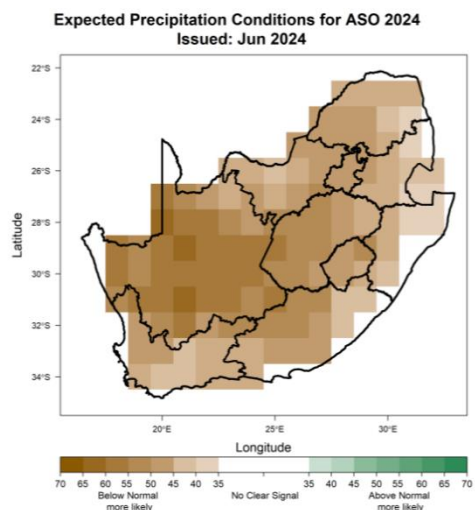
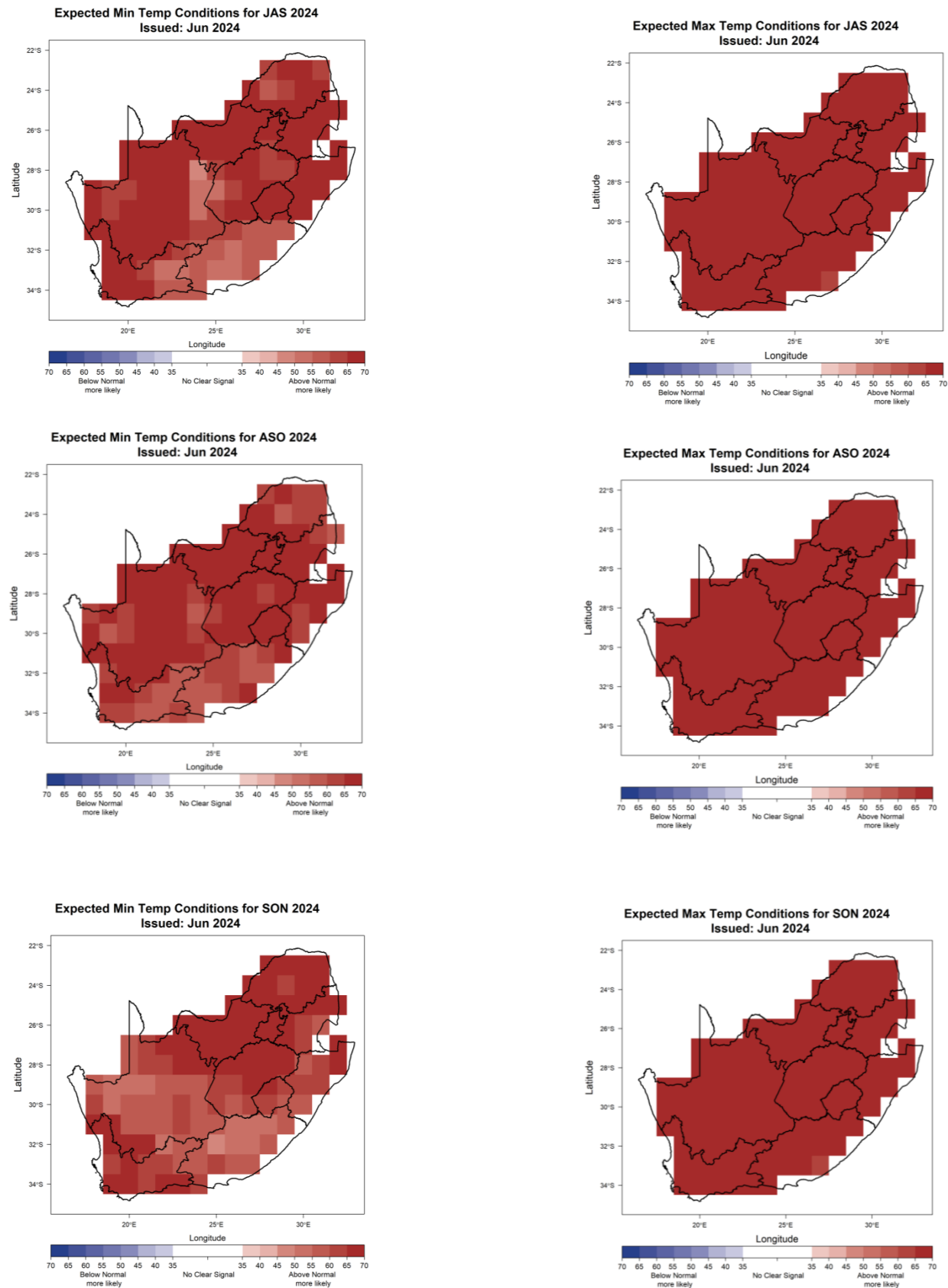


Figure 2 – Minimum and Maximum temperatures



Minimum and maximum temperatures are expected to be mostly above-normal countrywide for the forecast period.

In summary, rainfall is expected to be below-normal countrywide during the remainder of winter into spring. Above-normal temperatures are expected during the forecast period. Farmers are encouraged to continually check updates i.e., seasonal forecasts and utilize 7-day weather forecasts for short term planning.

With the above forecast in mind, the following strategies are recommended:

VI. SUGGESTED STRATEGIES

A. Winter crops: rain-fed crop production

Soil choice:

- Choose suitable soil type.
 - Suitable soil and land use management practices that would control wind and water erosion in cultivated lands are suggested.
 - Avoid marginal soils - shallow and low water holding capacity soils.
 - Rather plant in soils with high water holding capacity or with shallow water table.
- Ascertain that the soil profile has enough water when planting commences.
- Roughen the soil surface to minimize evaporation.
- Minimise compaction by reducing the passing of heavy machinery in the field.

Land preparation:

- Avoid where possible soils with pronounced plough pans.
- Consider practicing conservation agriculture such as zero or minimum tillage.
- Cover soil with organic matter or cover crops.
- Practice crop rotation.
- Do not expand land under crop production unnecessarily.
- Prioritise fallow land.

Crop choice and planting:

- Choose drought resistant cultivars.
- Provide flexibility and diversification.
- Stick to normal planting windows if appropriate and follow the weather and climate forecast regularly to make informed decisions.
- Consider staggered planting spreading over weeks.
- Do not experiment with new and unknown cultivars and also avoid unnecessary capital investments.
- Lay out planting rows parallel to the prevailing direction of the cold air flow.
- Keep air drainage pathways open to insure good air drainage and elimination of frost pockets.

Crop management:

- Adjust planting density accordingly.
- Consider mulching to minimise evaporation.
- Always eradicate weeds.

- Consider a conservative fertilizing strategy during dry conditions.
- Consider organic fertilization.
- Wheat: The strategy proposed is to scout the plants regularly, correctly identify any pests or diseases and make informed decisions regarding reaction.
- Prune trees properly to avoid blocking air movement. The removal of low hanging, dense branches is a must.
- Using white paint on trunks of fruits tree reduces winter trunk damage.
- Use overhead sprinkler irrigation.

B. Irrigation farming

- Remove all weeds containing seeds but keep other vegetative rests on the land because that will reduce evaporation.
- Check and repair all tools and machinery especially where there are water leaks.
- Be aware of the state of regional water resources and whether it will be adequate for irrigation.
- Timing of irrigation - rather late afternoon or early evening to reduce evaporation.
- Manage irrigation so that the plant receives water only when needed.
- Consider using drip irrigation as it saves water by allowing it to drip slowly straight to the roots.
- Avoid over irrigation because that can create problems e.g., water logging and diseases.
- Adhere to water restrictions when issued.

C. Domestic and home garden water use

- Conserve existing water supplies.
- Eradicate water weeds.
- Limit water waste and losses.
- Repair leaking pipes.
- Re-use water and retain high quality.
- Harvest water during rainy days.

D. Stock farming

- Keep stocking rates conservative and even lower to protect grazing.
- Never exceed carrying capacity of plant associations.
- Provide lots of drinking points where possible.
- Provide additional fodder and enhance nutritional value of dry grazing/feed with licks:
 - Phosphorous deficiency is a major problem.
 - Licks should (in most cases) provide:
 - Phosphorous.
 - Urea (to help with the break-down of dry vegetation). However, ensure that urea does not come into contact with water as it can become toxic.
 - Salt.
 - Molasses.
- Deficiencies differ according to vegetation composition/soil properties/climate.
- Analysis of vegetation/soil samples can benefit the decision for supplement composition.
- Sell mature, marketable animals (to help prevent overstocking/ overgrazing).
- If grazing is in danger, herd animals into pens where different animals can be segregated and fed separately.

E. Grazing

- Subdivide your grazing area into camps of homogeneous units (in terms of species composition, slope, aspect, rainfall, temperature, soil and other factors) to minimise area selective grazing as well as to provide for the application of animal management and veld management practises such as resting and burning.
- Determine the carrying capacity of different plant associations.
- Calculate the stocking rate of each, and then decide the best ratios of large and small animals, and of grazers or browsers.
- Provide periodic full growing-season rests (in certain grazing areas) to allow veld vigour recovery to maintain veld productivity at a high level as well as to maintain the vigour of the preferred species.
- Do not overstock at any time to avoid overgrazing.
- Eradicate invader plants.
- Periodically reassess the grazing and feed available for the next few months and start planning.
- Spread water points evenly.

F. Pests and diseases

Crops

- Fruit crop farmers should regularly scout for pests and diseases and contact the local agricultural office for advice on best control measures. Farmers should further implement phytosanitary measures.

Livestock

- Follow the vaccine routine and consult with the local veterinarian.

G. Veld fires

Provinces and farmers are advised to maintain firebreaks in all areas. An owner of the land who is obliged to prepare and maintain a firebreak must ensure that, with due regard to the weather, climate, terrain and vegetation of the area, the following is taken care of in terms of installing firebreaks (Chapter 4 of the National Veld and Forest Fire Act No. 101 of 1998):

- It must be wide enough and long enough to have a reasonable chance of preventing a veld fire from spreading to or from neighbouring land.
- It does not cause soil erosion and
- It is reasonably free of flammable material capable of carrying a veld fire across it.
- Firebreaks may be temporary or permanent.
- Firebreaks should consist of fire-resistant vegetation, non-flammable materials, bare ground or a combination of these.
- Firebreaks must be in such a way as to minimize risk to the resources being protected.
- Erosion control measures must be installed at the firebreak.

Firebreaks can be made through the following methods:

- Mineral earth firebreak:
 - Through ploughing, grading, other earth movement.
- Use of herbicides.
- Use animals to overgraze specifically to minimise fuel.
- Strategic placement of burned areas,
 - Not to be done on days with fire hazard (windy and dry/hot).
- Plant fire resistant plants.

- Plant species selected for vegetated firebreaks must be non-invasive and capable of retarding the spread of fire.

Maintaining firebreaks:

- Mow, disk, or graze vegetative firebreaks to avoid a build-up of excess litter and to control weeds.
- Inspect all firebreaks for woody materials.
- Inspect firebreaks at least annually and rework bare ground firebreaks as necessary.
- Repair erosion control measures as necessary.
- Access by vehicles or people must also be controlled.
- Bare ground firebreaks, which are no longer needed must be stabilized i.e.
 - Sow grass.
 - Mulch.

What to do when conditions favourable for veld fire are forecast:

- Prohibit fires in the open-air during periods of high fire hazard and establish a fire control committee.
- To control fires, an alarm system, firefighting teams, and beaters must be organized in advance and plans prepared.
- Livestock should be moved out of grazing land to a safe place.

What to do during a veld fire:

- Water is generally not available in sufficient quantities or at adequate pressure for the control of major fires; however, sand, or other loose mineral soil material can be an effective method of control.
- Tree branches can be used to beat fire.

H. Flooding

Heavy rainfall raises the water level. When the water level is higher than the riverbanks or the dams, water flows out from the river and flooding occurs.

Preventive measures:

- Construction of proper drainage systems. Drains must be cleaned constantly as they ensure proper water irrigation.
- Mechanical land treatment of slopes such as contour ploughing or terracing to reduce the runoff coefficient.
- Construction of small water and sediment holding areas.
- Construction of floodways (man-made channels to divert floodwater).
- Terracing hillsides to slow flow downhill.
- Water pumps in rivers likely to be affected should be lifted from the riverbanks when a warning for heavy rain has been issued.

What to do when flooding is forecasted:

Avoid:

- Cutting grass in the rainy season as this can result in nutrient depletion.
- Applying fungicides and pesticide (plants and animals).
- Applying Nitrogen fertilizer as this can burn plants. Dumping fertilizer in one spot can cause the roots below the fertilizer to be burnt and die.

- Irrigation, this can result in waterlogging leading to nutrient depletion.

Other measures to implement:

- Cover Urea licks to prevent them from becoming toxic.
- Provide shelter for animals (young ones can die easily).
- Leave cultivated areas coarse.
- Relocate/ move animals to a safe place.
- Be extra cautious for pest and diseases after rain has fallen, as high moisture content and high temperatures may trigger these.
- Assume that flood water contains sewage and might be harmful for human and livestock consumption.
- Before leading livestock across a river, check whether the water level is rising. This is especially necessary if it is already raining.

I. Erosion

Erosion is the wearing away of soil and rocks by the action of natural forces, for example, water and wind. The loose and dissolved materials move from one location to another. Erosion therefore may reduce agricultural production potential.

Preventative measures for erosion:

- Do not burn vegetation.
- Keep vegetation cover – e.g., shrubs, grass, small trees; a cover crop may be used to increase organic material and increase soil structure.
- Plant permanent vegetation e.g., perennial grasses where possible.
- Maintain any remaining vegetative cover, e.g., maize stubble during winter wheat sowing, as it acts as a blanket, traps eroded particles and reduces the wind speed at ground level.
- Plant evergreen trees growing densely and perpendicular to the typical wind direction during winter and spring as wind breaks.
- Increase water infiltration by correct management of soil e.g., reduce frequency of plough and use minimum tillage.
- Mulch: to increase infiltration, reduce evaporation, and reduce raindrop impact as well as wind erosion.
- Construct retaining walls around gardens.
- Avoid soil compaction by roughening the soil surface,
 - Furrows and tillage ridges can trap loose soil.
- Farm along contours as this reduces slope lengths.
- Prevent overgrazing.
- Practice conservation farming
 - Maximize retention of crop residues.

J. Cold spells (snowfall and frost)

When temperatures plunge below zero, livestock and crops need to be given extra attention. Prevention is key in dealing with hypothermia, and other cold weather injuries in livestock and crops. Following are several recommendations:

Livestock:

- Hypothermia and dehydration are a serious concern in animals during cold and wet conditions. Wind-chill also adds greatly to the cold stress for animals.
- Livestock should be provided with windbreak, roof shelter and monitored for signs of discomfort (extensive shivering, weakness, lethargy, etc.)
- It is very important that livestock be provided with extra hay/forage/feed to double the calories for normal body heat maintenance during extremely cold conditions.
- It is critical that livestock have access to drinking water. Usual water sources may freeze in low temperatures and dehydration becomes a life-threatening factor. In general, livestock tend to drink less water in extremely cold conditions.
- Special attention should be paid to very young and old animals because they may be less able to tolerate temperature extremes.
- Do not shear Angora goats. Also, take extra time to observe livestock, looking for early sign of diseases and injuries.
- Severe cold-weather injuries or death primarily occur in the very young or in animals that are already debilitated.
- Cases of cold weather-related sudden death in calves often result when cattle are suffering from undetected infection, particularly pneumonia.
- Livestock suffering from frostbite don't exhibit pain. It may be up to two weeks before the injury becomes evident as freeze-damaged tissue starts to slough away. At that point, the injury should be treated as an open wound and a veterinarian should be consulted.

Crops:

- Prune out the lower portions of windbreaks to allow air to pass through to avoid the formation of a frost pocket.
- Wrapping the trunks with materials such as newspaper, cardboard, aluminium foil will prevent much of frost damage.
- With more severe frosts, canopy death can occur, and trunk coverings need to extend up beyond the graft union, so the tree can reshoot from undamaged buds above the graft once the wraps are removed.
- Use heating devices such as orchard heaters to raise temperatures in plantings.

Winter crops are being planted. The veld and livestock are in reasonable to poor condition but good where supplementary feed is provided. The seasonal forecast anticipates below-normal rainfall during winter into spring and above-normal temperatures are expected countrywide.

With the seasonal forecast in mind, winter crop farmers who have yet to plant are advised to wait for sufficient moisture before planting and stay within the normal planting window. As below-normal rainfall is anticipated, farmers are also advised to be conservative in their planting i.e., planting density/cultivar/area being planted. In addition, they should consider drought tolerant cultivars where possible. Farmers using irrigation should reduce the planting area in line with water restrictions in their zones. The weather and climate forecasts should be followed regularly to make informed decisions. Farmers must continually conserve resources in accordance with the Conservation of Agricultural Resources Act, 1983, (Act No. 43 of 1983).

The veld has dried in many summer rainfall areas and therefore livestock should be kept in balance with carrying capacity of the veld and provided with additional feed such as relevant licks. Also, the livestock should be provided with enough water points on the farm as well as shelter during bad weather conditions including during very cold conditions. There is also an increase in the risk of veld




fires as the veld is dry. Veld fires have been reported in few provinces. Therefore, the creation and maintenance of fire belts should be prioritised along with adherence to veld fire warnings. Episodes of cold spells and localized flooding resulting from frontal systems have occurred and will continue to occur during winter and measures should be in place. Farmers are encouraged to implement strategies provided in the early warning information issued.

The users are urged to continuously monitor, evaluate, report, and attend to current Disaster Risk Reduction issues. It is very important and mandatory for farming communities to always implement disaster risk measures and maintain good farming practices.

The climate advisory should be disseminated widely. Users are advised to be on the look-out and act on the daily extreme weather warnings as well as the monthly advisory. Information sharing groups are encouraged especially among farming communities for sustainable development. In general, effective communication among all stakeholders in the sector will enhance effective implementation of risk reduction measures/early warning services. It is the responsibility of farmers to implement disaster risk measures.

The Disaster Management Act 2002, (Act No. 57 of 2002) urges Provinces, individuals, and farmers, to assess and prevent or reduce the risk of disasters using early warning information. The current advisory can be accessed from the following websites: <https://www.dalrrd.gov.za/>.

For more information contact:-

<p>DALRRD, Directorate: Climate Change and Disaster Risk Reduction Private Bag X250 Pretoria 0001 Tel: 012 319 6775/ 6794 Email: MittaA@Dalrrd.gov.za</p>  <p>agriculture, land reform & rural development Department: Agriculture, Land Reform and Rural Development REPUBLIC OF SOUTH AFRICA</p>	<p>SAWS: Private Bag X097 Pretoria 0001 Tel: 012 367 6000 Fax: 012 367 6200 http://www.weathersa.co.za</p>  <p>South African Weather Service ISO 9001 Certified Organisation</p>	<p>ARC: Institute for Soil, Climate and Water Private Bag X79 Pretoria 0001 Tel: 012 310 2500 Fax: 012 323 1157 Email: iscwinfo@arc.agric.za, http://www.arc.agric.za</p>  <p>ARC • LNR Excellence in Research and Development</p>
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