agriculture, land reform & rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

National Agro-meteorological Committee (NAC) Advisory on the 2020/21 summer and autumn seasons
Statement from Climate Change and Disaster Risk Reduction
06 DALRRD 2020

03 March 2021

In light of 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 particular 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 (rain water 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

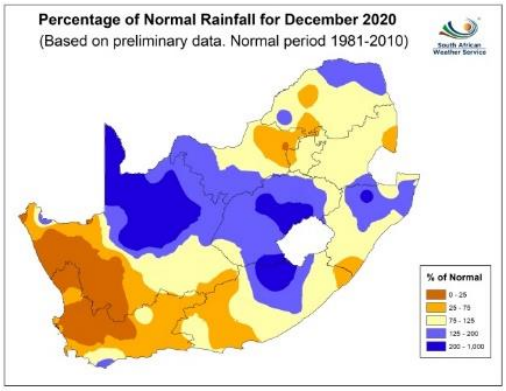


Figure 2

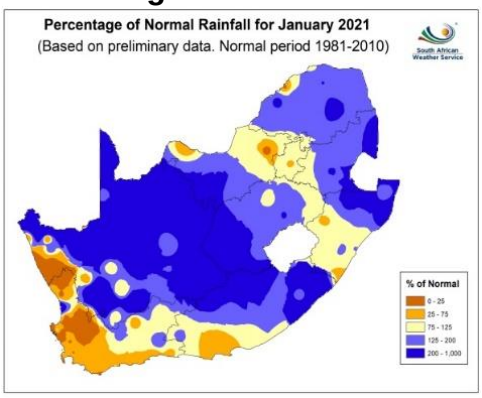


Figure 3

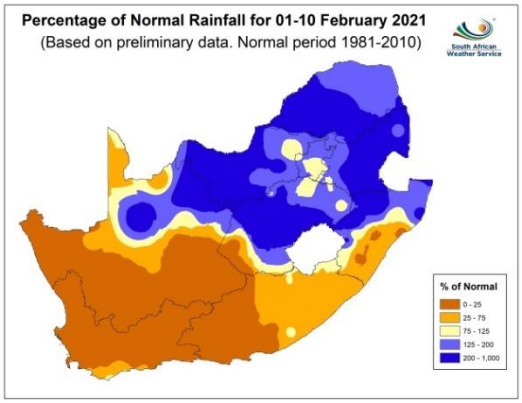
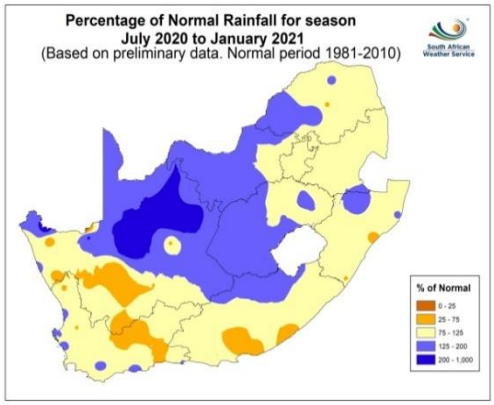
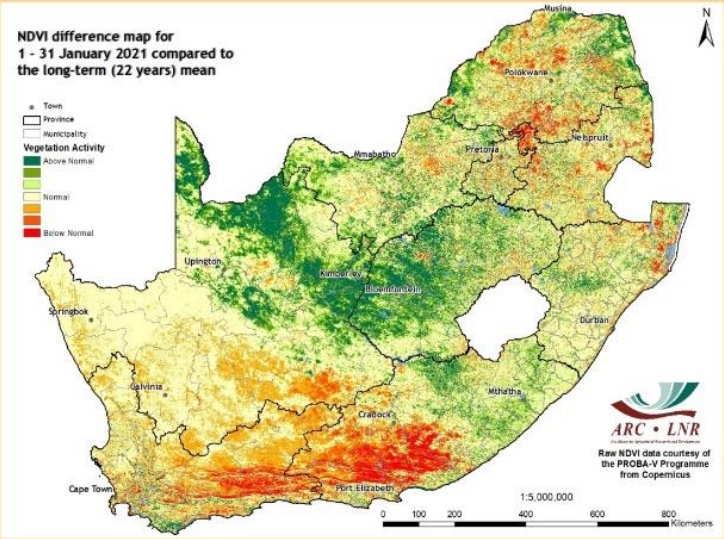


Figure 4



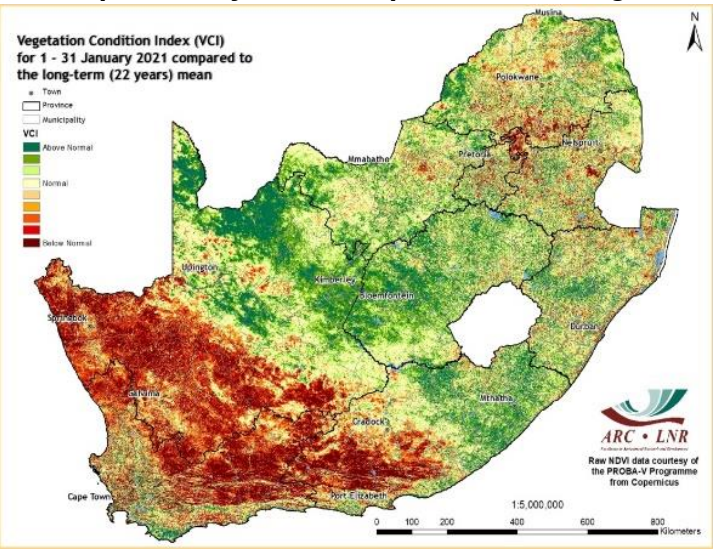
December received normal rainfall but above normal mainly over the central interior and north-western parts of the country **(Figure 1)**. During January rainfall increased, resulting in above normal rainfall over most parts of the country. The south-western parts of the country remained dry **(Figure 2)**. For the first ten days of February, above normal rainfall was received over most of the eastern half of the country while the western half remained dry **(Figure 3)**. For the season July 2020 – January 2021, above normal rainfall was received over the north-western parts of the country while the remaining parts received near normal rainfall **(Figure 4)**.

NDVI map: January 2021 compared to the long-term mean



The NDVI difference map for January 2021 compared to the long term mean shows that normal to above normal vegetation activity occurred over much of the central and northern parts of the country, with pockets of below-normal activity over the northern parts and most of the southern parts of the country.

VCI map: January 2021 compared to the long-term mean



The VCI map for January shows that the western half of the Northern Cape, the northern parts of the Central Karoo and West Coast of the Western Cape, the western parts of the Eastern Cape as well as isolated areas of Limpopo continue to experience alarmingly poor vegetation conditions while other parts of the country experienced improved vegetation.

(**The VCI is a better indicator of water stress than the NDVI**).

II. CONDITIONS IN THE PROVINCES DURING JANUARY/ FEBRUARY

Eastern Cape

The province received normal to above normal rainfall. Most of the Sarah Baartman District and Ngqushwa local municipality under Amathole District reported dry conditions. A mixture of fair and

good crop conditions were reported with isolated local municipalities indicating poor cropping conditions. The northern half of the province reported good livestock conditions, whereas most municipalities in Sarah Baartman area indicated fair livestock conditions. The remainder of the province reported poor to very poor livestock conditions. The larger part of the province in the south reported reasonable pasture conditions, while the northern parts reported good pasture conditions. The rangeland was reported as varying across the different areas of the province; what came out prominently is a mixture of good and reasonable conditions. Poor and very poor rangeland conditions dominate the Sarah Baartman, Amathole and King Sabata Dalindyebo in the OR Tambo Districts. The average level of major dams has increased as compared to the previous year during the same period (57% in 2021; 52% in 2020).

Free State
Normal to above normal rainfall was received but water restrictions are still in place. The drought monitor map for December indicates that Mohokare and Kopanong Local Municipalities are still in a mild drought. The veld is in excellent condition due to above normal rainfall received during late December and early February. Livestock condition is very good; however, most farmers still have to vaccinate and dose their herds against pulpy kidney especially sheep due to the abundance of fresh and green grass. The veld will sustain the livestock through winter. Summer pastures are in very good condition especially those that are under irrigation. Planting operations have concluded. The harvesting of wheat is complete but the yield is far below the norm due to fewer hectares that were planted. The average level of major dams has increased as compared to the previous year during the same period (100% in 2021; 74% in 2020).

Gauteng
Normal to above normal rainfall was received with flooding reported in Sedibeng and Tshwane. Maize and vegetables were affected by heavy rains. The veld is in good condition. Pneumonia was reported on chickens in the Bronkhorstspruit area. There was outbreak of African swine fever in Vanderbijlpark and blue tongue was reported in the Onderstepoort area on a flock of sheep. The average level of major dams has slightly increased (101% in 2021; 99% in 2020).

KwaZulu-Natal
During January near normal to above normal rains were fairly widespread with the north-eastern districts receiving heavy rains during the last week of January due to effects of tropical cyclone Eloise. Umkhanyakude, Amajuba and Uthukela were affected by very heavy rainfall and localised flooding with large areas being flooded. Flooding caused some damages to crops planted in flood plains. The drought monitor for mid-January shows a good improvement across the province to Level 2, drought Advisory, with only UMzinyathi remaining at Level 3, Minor Drought. Summer pastures are green and have developed good growth and bulk accumulation. Summer crops, mostly maize are already tassling and cobs developing well. Soyas are also doing well. Livestock condition across all sectors is good in most areas. There have been a few livestock losses due to severe lightning events. There is a high tick burden and regular dipping as well as dosing for worms is essential. Tick-borne diseases have caused some deaths. The average level of major dams is at 72% as compared to 61% of 2020 during the same period.

Limpopo
The province received above normal rainfall. During the last week of January the province was struck by a tropical cyclone Eloise which resulted in flooding particularly in Mopani, Vhembe, Sekhukhune and Capricorn Districts. Livestock and grazing conditions have improved greatly. The issue of bush encroachments is still a challenge in many communal grazing areas. Farmers are advised to reduce stock in order to avoid overstocking which has a direct correlation with over-grazing which leads to soil degradation. Most farmers who had crops growing during the

occurrence of the cyclone Eloise suffered huge losses. The average level of major dams is at 88% in 2021 as compared to 71% of 2020.

Mpumalanga
Normal to above normal rainfall was received. Tropical cyclone Eloise resulted in severe damages to crops and agricultural infrastructure including roads. Livestock mortalities were also reported and loss of human lives. Very strong winds from tropical cyclone Guambe uprooted a banana plantation. The veld is improving and livestock is in good condition. The average level of major dams has increased to 89% as compared to 75% of 2020 during the same period.

Northern Cape
Normal to above normal rainfall was received over ZF Mgcawu, John Taolo Gaetsewe, Frances Baard and Pixley Ka Seme. Flooding was reported in John Taolo Gaetsewe and Frances Baard which resulted in damages to agricultural infrastructure and livestock mortalities. Other areas received below normal rainfall. The veld conditions differ from district to district and even among the municipalities. Namakwa and parts ZF Mgcawu are experiencing poor to very poor grazing and livestock conditions. The table grapes farmers have completed harvesting and packing; and the raisin farmers are in their middle of their harvesting season. The average level of major dams has increased (102% in 2021, 91% in 2020).

North West
Normal to above normal rainfall was received. Heavy rain from tropical weather systems resulted in damages to infrastructure. Crops are in good condition and farmers are anticipating good yields. Livestock mortalities were reported due to severe thunderstorms. The excessive rainfall is likely to cause insect borne diseases and the province is planning to vaccinate for diseases such as Lumpy skin disease, Anthrax and others. The average level of major dams has increased (83% in 2021; 67% in 2020).

Western Cape
NIL REPORT.

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 2021/03/01

III. SADC REGION

The Famine Early Warning Systems Network (FEWS NET) report issued in February 2021 states that Southern Africa has been hit by a second, more severe wave of COVID-19, as most countries started economic recovery in late 2020. The most affected countries are South Africa, Zimbabwe, Lesotho, Mozambique, and Malawi, where the high case positivity rate led to reinstating restriction measures limiting people movement and closing some borders. This led to a reduction in access to income among some households; however, agricultural activities are generally continuing as typical. Most poor households are accessing food and income from agricultural labor, although wage rates remain below average. Most of the region is expected to continue facing Stressed (IPC Phase 2) and Crisis (IPC Phase 3) outcomes until the harvest beginning in April.

Rainfall across most Southern Africa has been average to above average, becoming one of the best in recent years. However, significantly below-average rainfall is of high concern in Madagascar, northern Mozambique, and central and southwestern Angola, where rainfall deficits

are up to 50 percent of normal. In southern Madagascar, a drought is currently ongoing, negatively impacting crops and water availability. Rainfall over areas of eSwatini and northeastern South Africa, which touches the maize triangle, is somewhat below-average; however, due to high mechanization, these rainfall deficits are not of high concern. In January, Tropical Cyclone Eloise made landfall over northern Mozambique, decreasing rainfall deficits; however, destruction to crops and infrastructure were also reported. The harvest is expected to be favourable across much of the region due to favourable rainfall performance and likely continued average rainfall. Crops across most of the region are in good condition at the vegetative to reproductive stage. Although in southern Madagascar, production is expected to be below average.

FEWS-NET further reported that as rainfall continues in much of the region, there is a risk of waterlogging and flooding in some areas, particularly Zimbabwe, central Mozambique, and areas of DRC and Malawi. While the rains are good, access to fertilizers remains limited to poor households. Pests and diseases also remain a threat. Despite the good rainfall season, the factors mentioned above will most likely contribute to a reduction in crop yields, especially for poor households. Most water bodies have recharged, with some reaching maximum capacity in Zimbabwe, Mozambique, and Malawi. Water availability for humans and livestock is well above past years in many areas; however, it remains poor in far south Madagascar. Pastures have also improved across the region due to good rains, driving improvements in livestock body conditions. It is expected that livestock production will improve with the improved pasture, with some households restocking livestock after multiple poor seasons in areas of the region. However, continued poor pasture in southern Madagascar is driving lower than normal livestock conditions.

[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

Normal to above normal rainfall was received over most parts but below normal towards the south-western parts of the country. The veld condition is good but poor in parts of the Western Cape, Northern Cape and Eastern Cape. Tropical cyclone Eloise resulted in flooding and damages to crops, infrastructure, livestock mortalities and loss of human lives. Heavy rain from other weather systems also resulted in flooding. Livestock condition has also improved in most parts. KwaZulu-Natal reported death of livestock due to tick-borne diseases and lightning. In Gauteng, pneumonia was reported on chickens; also there was outbreak of African swine fever and blue tongue on a flock of sheep. Dams in the majority of provinces have been replenished by the copious rains received. Over SADC, agricultural activities are generally continuing as typical and most poor households are accessing food and income from agricultural labor.

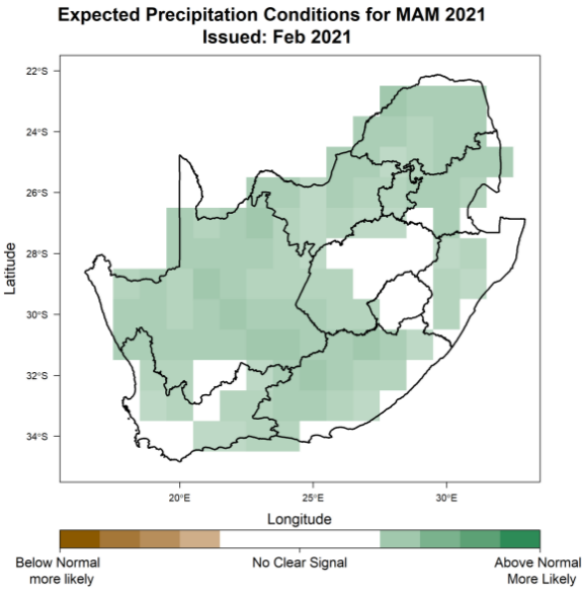
IV. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: March to July 2021

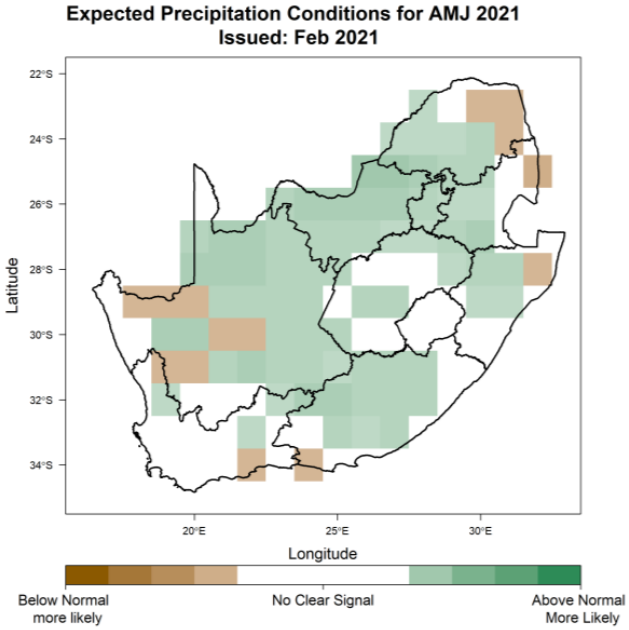
State of Climate Drivers

The El Niño-Southern Oscillation (ENSO) is currently in a La Niña state and the forecast indicates that it will most likely weaken and possibly return to a neutral state by the winter season. The influence on South Africa from ENSO however is expected to dissipate as we move towards the autumn and winter months.

Figure 1 – Rainfall



The multi-model rainfall forecast indicates mostly above-normal rainfall with drier than normal patches scattered in parts of the north-east and south-west in late autumn (Apr-May-Jun) and early winter (May-Jun-Jul).



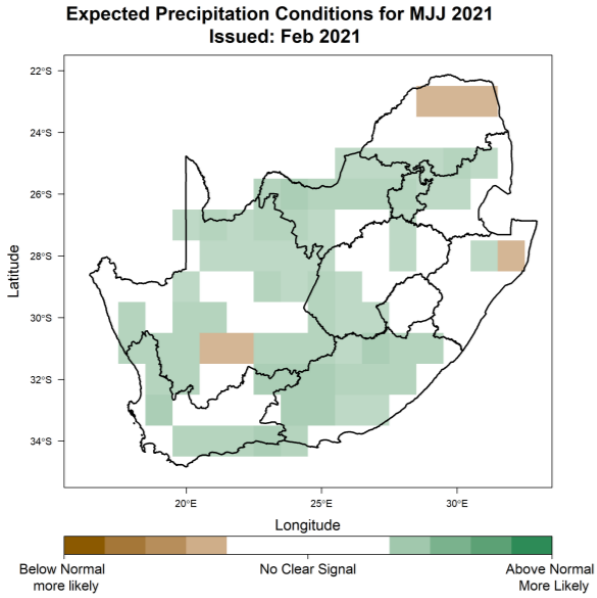
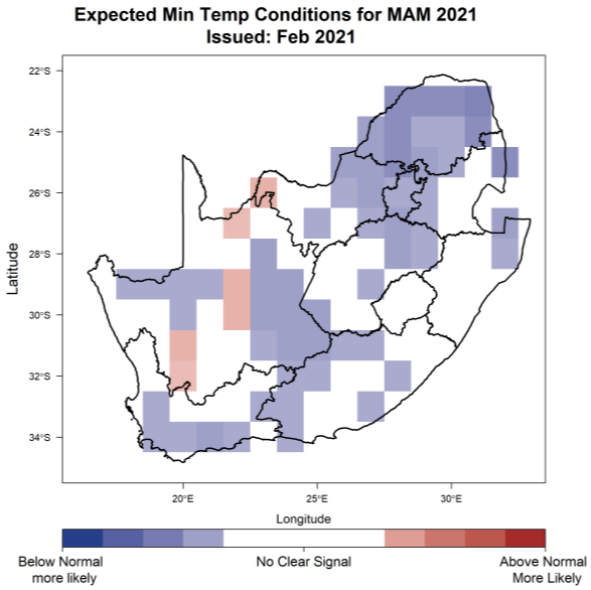
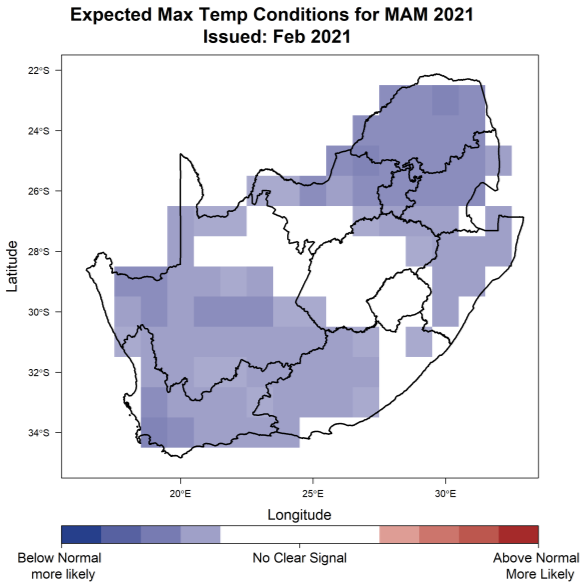


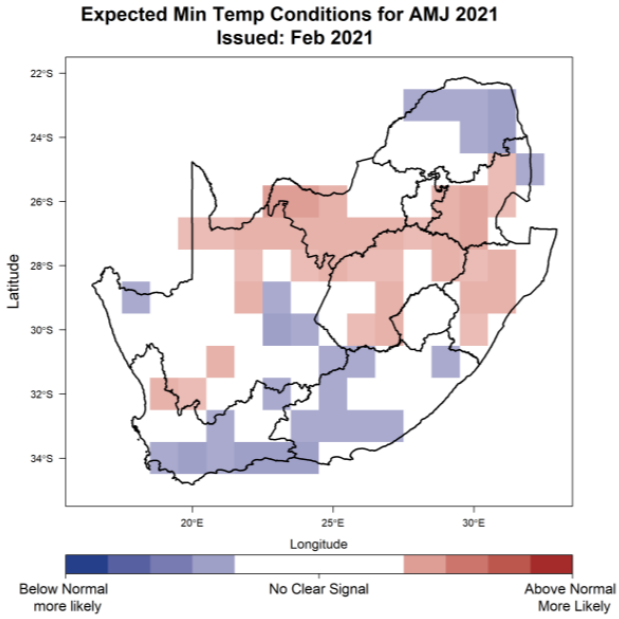
Figure 2 – Minimum and Maximum temperatures

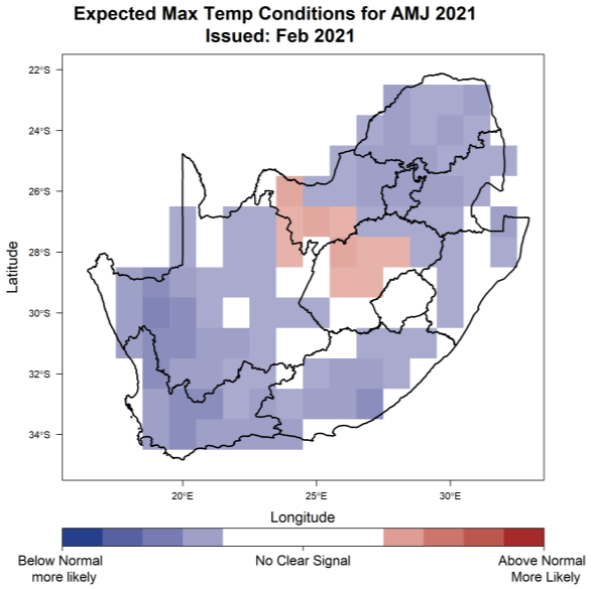
Minimum

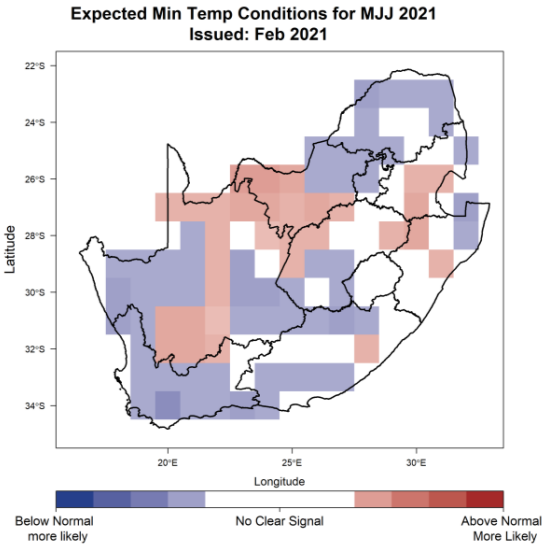


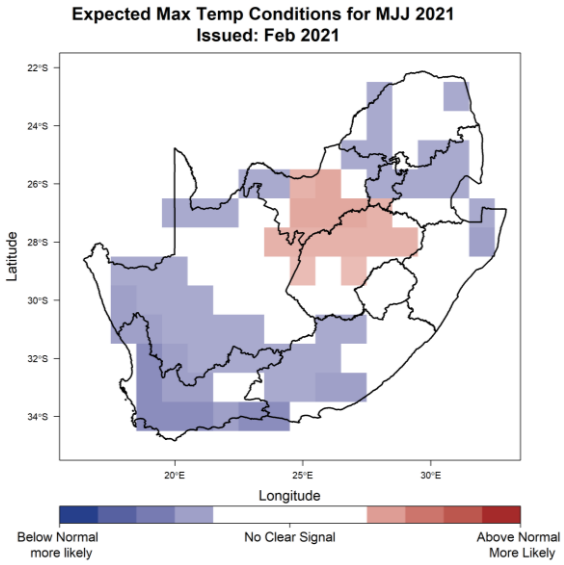
Maximum











Mostly below normal minimum and maximum temperatures are expected over the country with the exception of the interior, especially during the late autumn. By contrast, early winter will see a modest signal for above normal minimums and maximums over the interior, but cooler than normal elsewhere.

In summary, rainfall is anticipated to be above normal in the late autumn and early winter. Both maximum and minimum temperatures are anticipated to be below normal during late autumn. 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:

V. SUGGESTED STRATEGIES

A. Crop management

- Consider mulching to minimize evaporation.
- Control weeds regularly.
- Scout for pests and diseases regularly and control where necessary.
- Practice water harvesting techniques e.g. construction of basins, contours, ridges.

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).
      - 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 in order 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 in advance.

- 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.
- Irrigation farmers should monitor for pests and diseases especially those associated with humid and hot conditions.

Livestock

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

G. Veld fires

The 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 has to 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 inflammable material capable of carrying a veld fire across it.
- Firebreaks may be temporary or permanent.
- Firebreaks should consist of fire-resistant vegetation, inflammable materials, bare ground or a combination of these.
- Firebreaks must be located 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 favorable 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. Heat stress – bad for productivity

- Signs of heat stress:
  Bunching in shade, high respiratory rates, open mouth breathing.
- What to do:
    - Offer shade.
    - Offer water- keep good quality water in front of animals.
    - Wet with sprinklers/fire hose.
    - Water ground.
    - Avoid overworking animals.
    - Control insects. Biting insects, such as flies can further stress livestock and interrupt their cooling. If pastures or buildings draw insects to livestock during times of extreme heat, provide proper insecticides or considering relocating your livestock.

Poultry

- Provide cool, clean, quality drinking water to your poultry. Water will help keep your birds cool.
- Always make sure your poultry is in a well-ventilated area in which there is nothing to obstruct the airflow.
- Provide feed during the coolest part of the day.
- Supplement drinking water with electrolytes.
- Reduce the number of birds kept in a house or in an area.
- Avoid excessive activity during the hottest part of the day.

I. Wind Erosion

Wind erosion reduces agricultural production potential
Preventative measures for wind 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: Act as blanket, trap eroded particles –and reduce wind speed at ground level.
- Plant evergreen trees growing densely and perpendicular to 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 over grazing.
- Practice conservation farming
- Maximize retention of crop residues.

J. Severe thunderstorms

Building resilience:

- Identify resources/facilities within 50 km that can be utilized and can be of help during emergencies.
- Be sure to have legal and adequate markings to identify your livestock.
- Stay well informed about livestock in your possession and conduct an inventory after the event.
- Monitor television and local radio stations for information regarding severe storms/flash floods in your region.
- Identify natural or built areas/shelters where animals can be kept during such conditions
    - Sufficient height to be above water level,
    - Sheltered from strong winds and wetness,
- Restrict access to high-risk areas such as low lying fields close to streams.
- Store food in safe areas sheltered from wetness to be used after storms/flash floods.
- Keep pesticides and other chemicals in areas where water will not be contaminated during extreme rainfall/storm events.
- Inspect/repair farm dams bbefore rainy season, and after each event.

K. Flooding

- Safeguard belongings by relocating movable assets to safer areas i.e. irrigation equipment and livestock.
- Farmers should not to apply any production inputs.
- Protect horticultural crops to avoid damages by the storm.
- Cover feeds especially those contacting urea to avoid poisoning.
- Lift water pumps in the affected rivers from the river banks.
- Create waterways on access roads and in the fields.

- Open spillways to reduce pressure in the earth dams.
- Construct proper drainage systems – drains must be cleaned constantly as they ensure proper water irrigation.
- Construct small water and sediment holding areas.
- Terrace hillsides to slow flow downhill.
- Extra precaution needs to be taken for pests and diseases after rain has fallen, as the high moisture content may trigger population explosions.
- Before leading livestock across a river, establish whether the water level is rising. This is especially necessary if it is already raining.
- When flooding is forecast avoid:
    - Cutting grass as it may lead to nutrient depletion.
    - Appling fungicides and pesticide (plants and animals).
    - Applying nitrogen fertilizer, it can burn plants.
    - Dumping fertilizer in one spot, this can cause the roots below the fertilizer to be burned and die.
    - Irrigating as waterlogging can occur leading to nutrient depletion.

L. Pests and diseases

Outbreak of pests and diseases is expected in crops and livestock following the recent heavy rains in most summer rainfall areas and farmers should put precautionary measures in place for them.

Crops

- Diseases such as root rots are expected following heavy rains and must be controlled.
- Pests associated with wet condition should be scouted and controlled.

Livestock

- Follow vaccination schedule.
- Continually inspect your livestock for ticks and control them when necessary.
- Be on the alert for diseases such as Rift Valley Fever and administer appropriate medication.

Conditions have greatly improved in many summer rainfall areas. However, other areas suffered severe damages to crops, infrastructure, livestock mortalities and loss of human lives due to the effects of tropical cyclone Eloise and other weather systems that caused heavy downpours. The seasonal forecast anticipates above normal rainfall with drier than normal patches in parts of the north-east and south-west in late autumn and early winter. Maximum temperatures are expected to be below normal but above normal over some parts in the interior towards late autumn. With the seasonal forecast in mind, precautionary measures should be in place for localised flooding as the seasonal forecast indicates that rain is expected to continue for the remainder of the summer season into autumn. The veld and livestock conditions have recovered in many areas prior the impacts of floods. However farmers are still advised to keep livestock in balance with the available grazing and provide additional feed such as relevant licks. They should also provide enough water points on the farms as well as shelter during bad weather conditions. The farming community is advised to be on the lookout for the episodes of rain-bearing weather systems and respond accordingly.

Farmers are advised to put measures in place for pests and diseases particularly those associated with wet conditions following heavy rain in the country as well as the anticipated above normal rainfall in summer rainfall areas. Although abundant rain has fallen, farmers must continually conserve resources in accordance with the Conservation of Agricultural Resources Act 1983, (Act No. 43 of 1983). All farmers should follow the weather and climate forecasts regularly so as to make informed decisions.

Conditions conducive for veld fires remain in some areas, particularly the western parts of the country. Therefore, maintenance of fire belts should be prioritized as well as adherence to veld fire warnings. Incidents of heat waves are possible and therefore measures to combat these 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:-

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