agriculture, land reform & rural development
Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

National Agro-meteorological Committee (NAC) Advisory on the 2021/22 summer season
Statement from Climate Change and Disaster Risk Reduction
06 DALRRD 2021

08 March 2022

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

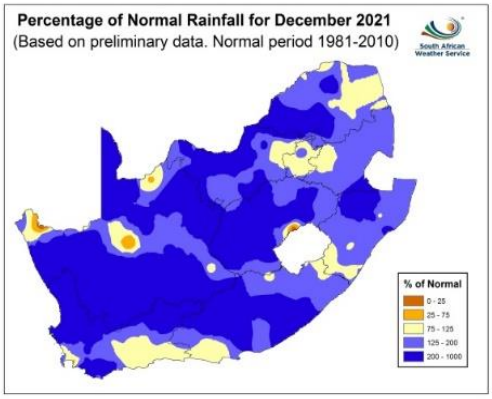


Figure 2

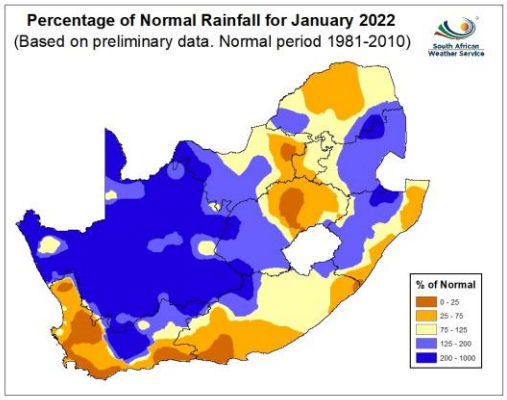


Figure 3

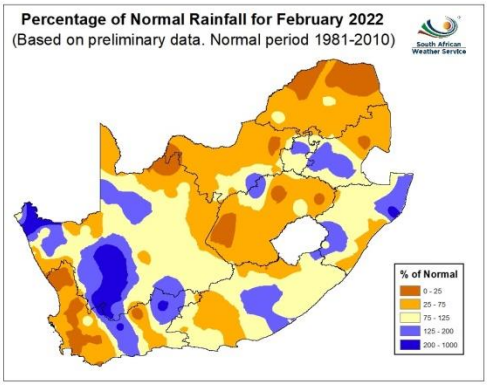
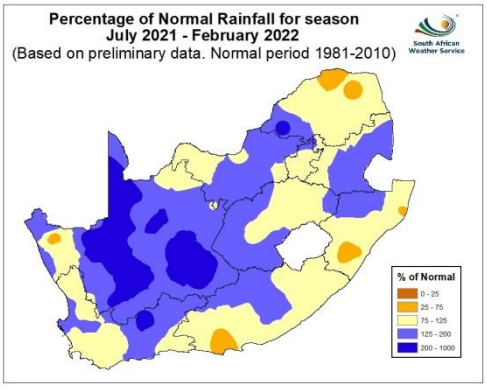
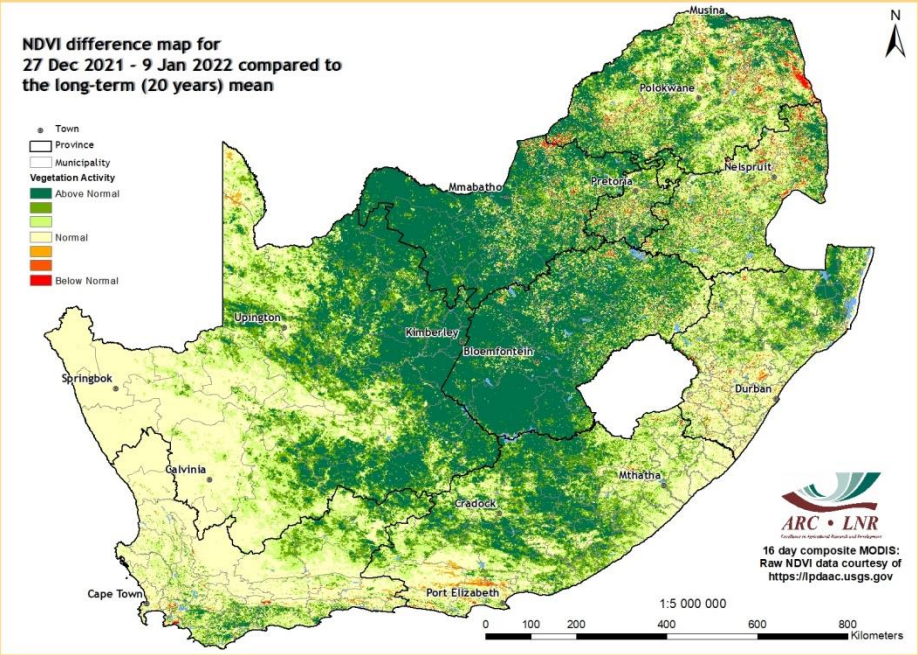


Figure 4



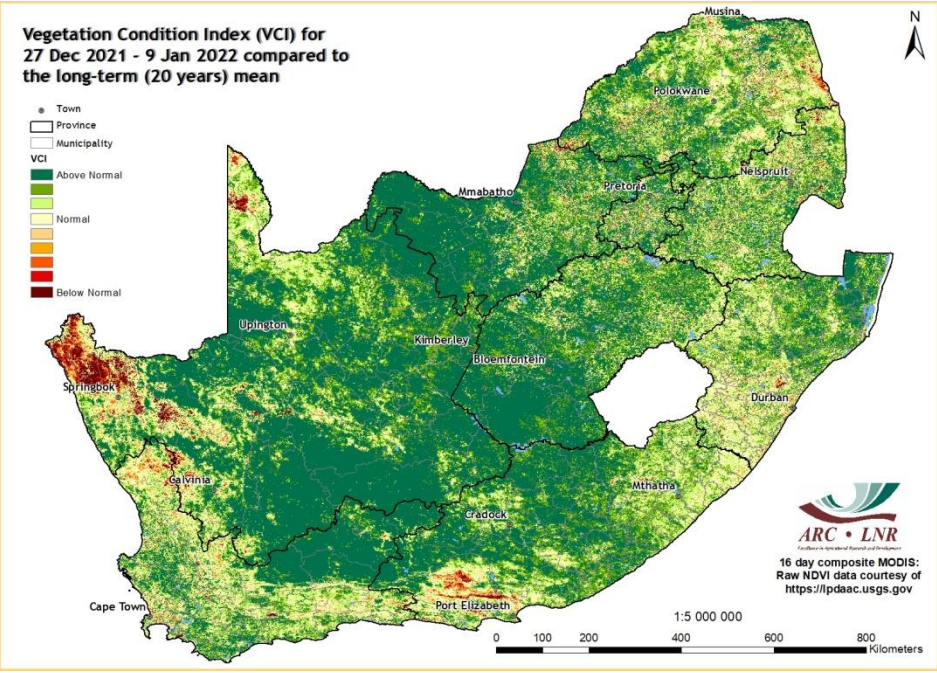
The month of December received above-normal rainfall countrywide **(Figure 1**). The above-normal rainfall continued into January predominatly in the Northern Cape, parts of the Free State, North West, Mpumalanga and KwaZulu-Natal **(Figure 2)**. Remaining parts of the country received normal to below-normal rainfall. During February, rainfall received was near-normal with patches of above normal over the Northern Cape, Eastern Cape, KwaZulu-Natal, Gauteng and parts of Mpumalanga **(Figure 3)**. The remainder of the country received below normal rainfall. The season July 2021 to February 2022 received above-normal rainfall over the central and western parts of the country, as well as in Mpumalanga **(Figure 4)**. Remaining areas received normal rainfall.

NDVI map: 27 December 2021 – 09 January 2022 compared to the long-term mean



Compared to the 19 years long term mean, the 14-day NDVI difference map for December shows that the country experienced mostly normal to above-normal vegetation conditions with pockets of below-normal conditions in isolated areas.

VCI map: 27 December 2021 – 09 January 2022 compared to the long-term mean



The 14-day VCI map for December indicates that improved vegetation conditions have spread over many parts of the country, although pockets of poor vegetation is observed in isolated areas in the Northern Cape, Eastern Cape and Limpopo.

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

II. CONDITIONS IN THE PROVINCES DURING JANUARY/ FEBRUARY

Eastern Cape
Normal to above-normal rainfall was received but below-normal in the western parts of the province. The good rains were favourable for early cropping season. However, thunderstorms resulted in waterlogging and crop damage in some maize fields. Farmers have planted vegetables in most eastern parts of the province as they depend on rainfall. In Sarah Baartman and Amathole Districts citrus is reported to be in very good condition while in Kou-Kamma deciduous fruit farmers started with harvesting of early pears. Chicory farmers in Ndlambe are busy harvesting as well. In Sarah Baartman at Koukamma dairy farms, pastures look green but the grass is too short for grazing. Joe Gqabi reported pastures to be in fair to good condition. Chris Hani and Sarah Baartman Districts reported mainly reasonable to good livestock conditions. Alfred Nzo, O R Tambo and Joe Gqabi Districts reported good to very good livestock conditions due to improved veld condition. Incidences reported were Brown locust swarms in the Karoo area, and Rabies in Buffalo City Metro. The average level of major dams has increased to 63% in 2022 as compared to 56% of 2021.

Free State
Normal to below-normal rainfall was received but above-normal in the west. The veld and livestock are in good condition as well as summer pastures. Brown locust control measures continue to be implemented. The average level of major dams has slightly increased as compared to the previous year during the same period (102% in 2022; 97% in 2021).

Gauteng
Normal to below-normal rainfall was received. There was flooding that resulted in water logging in fields and damages to hydroponic structures. African Swine Fever was reported in Natalspruit and Randfontein; Highly Pathogenic Avian Influenza in Germiston and Salmonella Enteritidis on poultry in Tshwane. Lameness and eye infections on livestock have been noted. The average level of major dams has remained similar to the previous year at 101%.

KwaZulu-Natal
Above-normal rainfall was received and it resulted in flooding, damages to crops, horticulture, livestock, property and infrastructure. The Drought Monitor for mid-January shows that conditions remain at Level 2, Drought Advisory for Umkhanyakude, King Cetshwayo, Ethekwini and Umgungundlovu. The situation has reverted to normal in the remaining districts. Commercial maize is tassling in most areas. Grain crops were severely affected by the extremely wet conditions, where some farmers expect greater than 60% damage to white maize, about 15% of yellow maize, 1% of the soya beans and 17% of the sunflower crops. Most of the province has experienced good levels of pasture growth. Land preparations for winter pastures will start toward the end of February through to March. Livestock condition is good. Tick burdens are high and regular dipping and deworming is advised. Veld and vegetation conditions were mostly normal. A number of lightning-related livestock fatalities were reported. Ongoing monitoring and strategic spraying is taking place for Fall Army Worm and stalk borer. Stiff sickness has been reported in cattle in the Midlands and is treated symptomatically. The province experienced a significantly lower number of fires. The average level of dams has increased as compared to previous year (88% in 2022; 66% in 2021).

Limpopo
The province received above normal rainfall in most parts. The condition of grazing has improved especially in communal areas due to good rains. Most of the livestock ranges from fair in communal to good in commercial farming. Most farmers under irrigation planted summer crops

such as spinach, sweet potato, beetroot and green paper. Presently the condition of veld in many communal areas is slowly improving, but poor in other areas. Incidences reported where hail damage in Waterberg District on peppadew and butternut, strong winds in Mopani which destroyed chicken houses and Fall Army Worm. The average level of major dams has increased to 88% in 2022, as compared to 87% of 2021.

Mpumalanga
Distribution of crop seeds in Nkangala District continues while planted crops are in good condition apart from the planted cabbages that suffered waterlogging in certain parts of the district. In other fields planting and soil preparation was interrupted due to excessive rain, it resulted in waterlogging of crops including grain and horticulture. Most farmers in the district are maintaining vegetables while other farmers are maintaining sugarcane. The veld and livestock are in good condition following the rains received. The average level of major dams is at 93% in 2022 as compared to 88% of 2021.

Northern Cape
Above-normal rainfall was received in ZF Mgcawu, John Taolo Gaetsewe and Frances Baard but below-normal elsewhere. The only part of the province where significant drought conditions prevail is in the northern part of Namakwa District and in particular the Richtersveld. Small portions of Pixley ka Seme and ZF Mcgawu are still experiencing drought. The veld and livestock have improved in many areas although farmers have reduced the number of livestock. Pumps had to be removed from the river due to flooding along the river system. That resulted in some farmers delaying the application of liquid fertilizer. This will mainly affect the yield of the summer crops especially maize. Table grapes farmers have finished harvesting and packing; however some losses were reported due to rain. Locust outbreaks continue to be controlled. The average level of major dams is at 108% in 2022 as compared to 102% of 2021.

North West
Normal to above-normal rainfall was received but below-normal in the east. Flooding resulted in damages to crop fields, farm roads, earth dams and farm fences. The veld and livestock are in good condition. The average level of major dams is lower at 73% as compared to 84% of 2021.

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 2022/02/28

III. AGRICULTURAL MARKETS

Major grain commodities
ABSA indicated that white and yellow maize slightly decreased; the resistance in local prices was due to the appreciation of the rand against the USD. Wheat prices traded sideways but decreased by 1.1% month on month also due to the Rand appreciating against the dollar. Soybeans price and the derived soybean price increased. Projection over the next three months is that prices for soybeans will follow a moderate downward trend.

	Future Prices ((2022/03/02) R/ton				
Commodity	Mar-22	May-22	Jul-22	Sep-22	Dec-22
White maize	3 800,00	3 819,00	3 817,00	3 863,00	3 940,00
Yellow maize	3 820,00	3 980,00	3 985,00	4 030,00	4 095,00
Wheat	6 470,00	6 530,00	6 576,00	6 454,00	6 204,00
Sunflower	10 750,00	10 517,00	10 590,00	10 671,00	10 690,00
Soybeans	9 511,00	9 492,00	9 588,00	9 663,00	9 696,00

SAGIS: 2022/03/03

IV. SADC REGION

The Famine Early Warning Systems Network (FEWS NET) issued in February 2022 reported that Tropical Cyclone Ana hit much of Southern Africa in late January, causing the displacement and destruction of crops across central and northern Madagascar and Mozambique, southern and northern Zimbabwe, and southern Malawi. According to OCHA, over 62,000 households in Madagascar, over 195,000 households in Malawi, and more than 180,000 households in Mozambique were affected by the impacts of the winds, heavy rains, and damage caused by Tropical Cyclone Ana. In Zimbabwe, some impacts were reported but were not as significant. In all the affected countries, there are reports of crop damage that will likely negatively impact the 2022 harvest. In February, Tropical Cyclones hit Madagascar, Mozambique, and neighboring areas on a nearly weekly basis. Much of the region received moderate to heavy rainfall in January after a very poor start to the season. However, despite improved rainfall, deficits are still present in some areas of the region. In Malawi and southern Madagascar, rainfall continues to be below-average, where historic rainfall deficits were still present at the end of January. These conditions have affected planting activities and resulted in poor cropping conditions with lower-than-normal area cropped. Similar conditions have been reported for some areas of central and southern Mozambique, as well as extreme southern parts of Zimbabwe where rainfall has been below-average. These conditions will likely lead to below-average production in affected areas.

FEWS NET further reported that as the peak of the lean season is ongoing, many households are reliant on markets as food stocks have been depleted. Households in southern Madagascar are among the most food-insecure populations in the region due to consecutive years of drought. Households in these areas are currently relying significantly on humanitarian assistance and are experiencing Crisis (IPC Phase 3) and Stressed (IPC Phase 2) outcomes. Households in most conflict-affected areas of Mozambique and DRC are currently experiencing Crisis (IPC Phase 3) outcomes. In these areas, livelihood activities are disrupted, notably among displaced populations. Crisis (IPC Phase 3) outcomes are currently ongoing in southern parts of Malawi, Zimbabwe, and central and southern parts of Mozambique, where last year's production was affected by below-average rainfall.

[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 resulted in flooding in many provinces and some areas experienced damages to crops and infrastructure. Livestock mortalities due to lightning were reported in

KwaZulu-Natal. The veld and livestock are mainly in reasonable to good condition. Fall Army Worm was reported in Limpopo and continues to be monitored in KwaZulu-Natal. The outbreaks of locust are being controlled in the Northern Cape, Eastern Cape and Free State Provinces. There were cases of Highly Pathogenic Avian Influenza and Salmonella in Gauteng. The average level of major dams has increased in most areas.

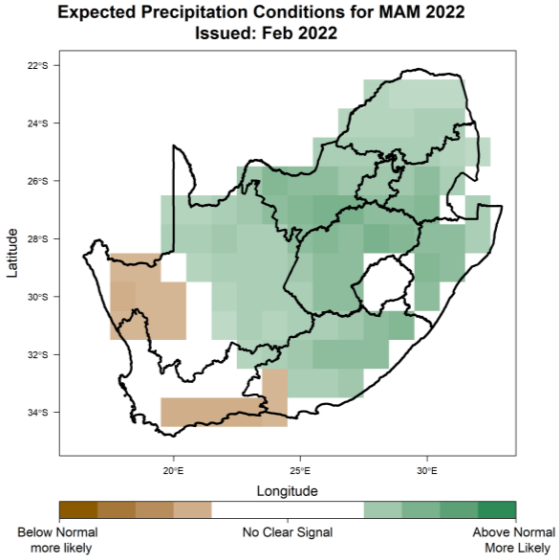
V. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: March to July 2022

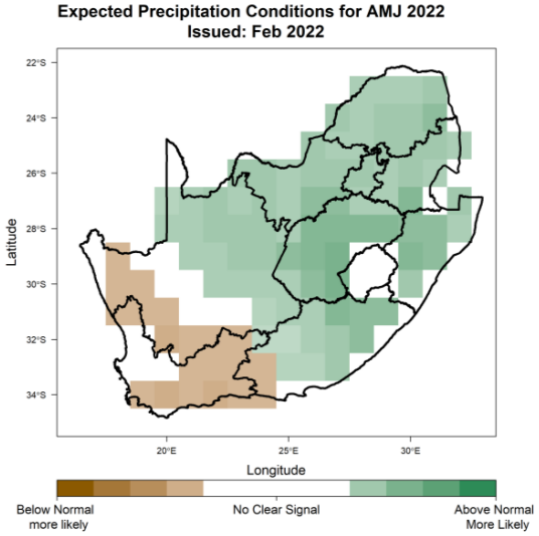
State of Climate Drivers

The El Niño-Southern Oscillation (ENSO) is currently in a La Niña state and the forecasts indicate that it will likely remain in a La Niña state throughout the autumn season. During autumn, the presence of ENSO has less of an impact. Thus, the presence of a La Niña is not expected to have any significant impact on rainfall in the coming season.

Figure 1 – Rainfall



The multi-model rainfall forecast indicates above-normal rainfall for the north-east of the country and below-normal rainfall for the south-west during mid-autumn (MAM) through to early-winter (MJJ).



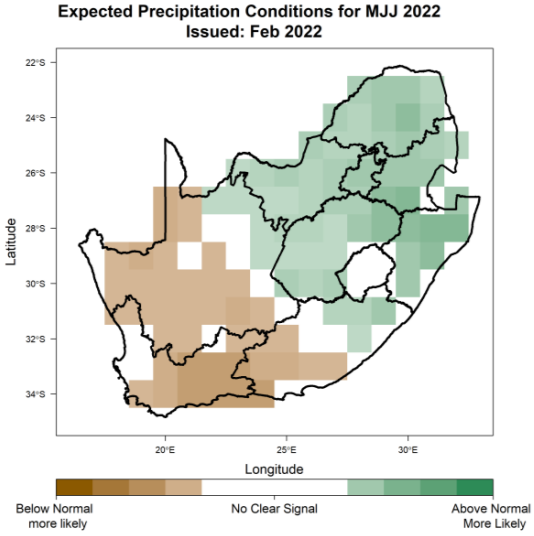
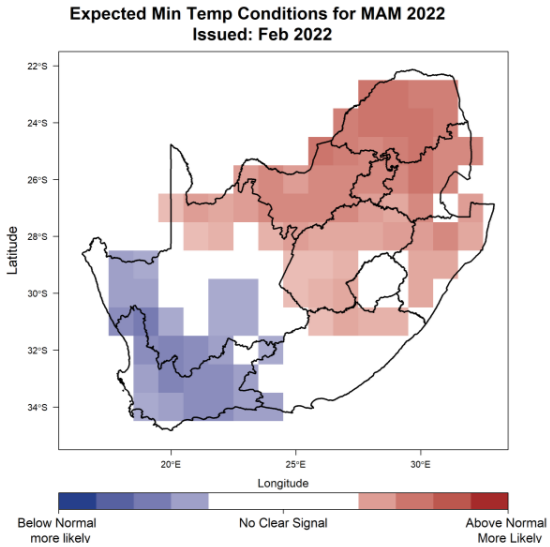
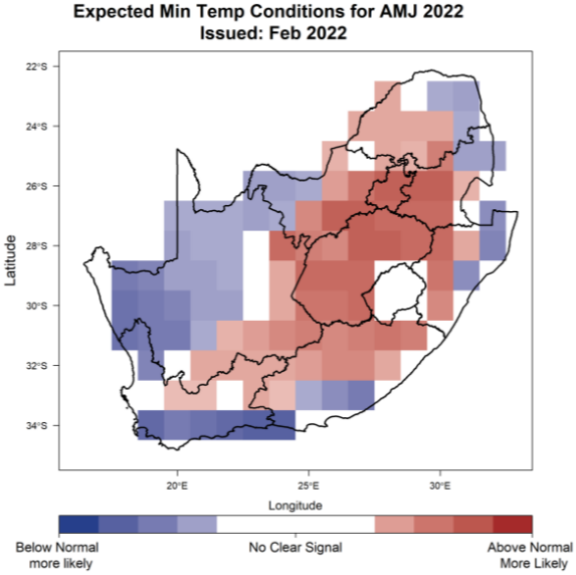
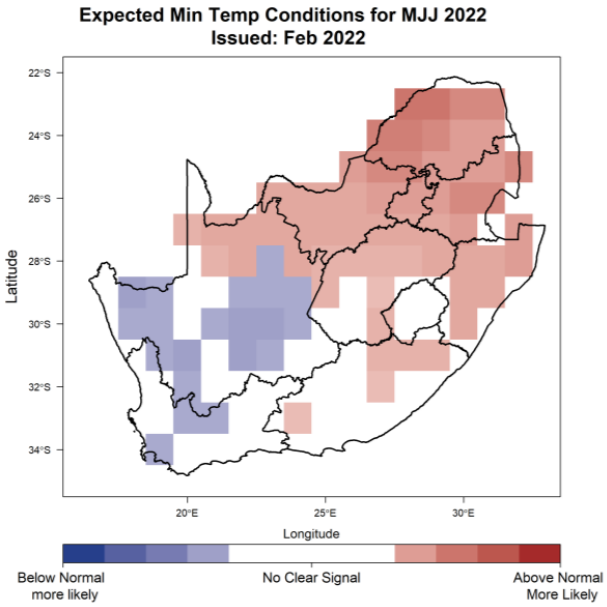


Figure 2 – Minimum and Maximum temperatures

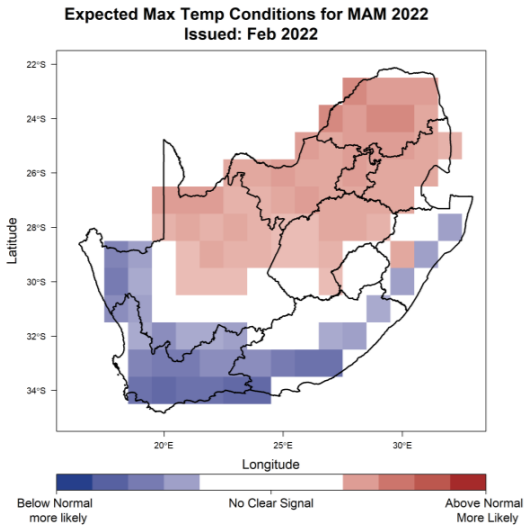
Minimum

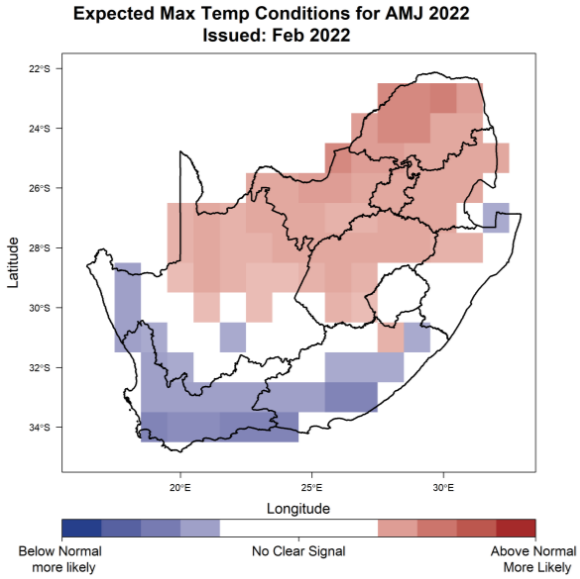


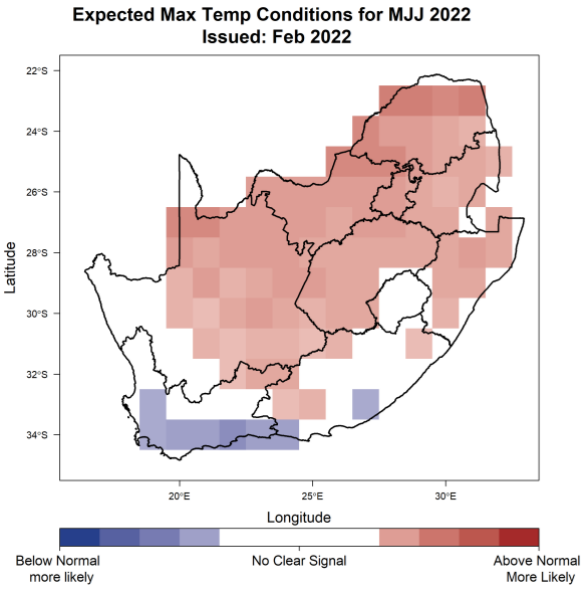




Maximum







Temperatures are expected to be quite variable during the coming season, however, the majority of the forecasts indicate mostly above-normal temperatures over the central and north-eastern parts and below-normal temperatures over the south-west.

In summary, above-normal rainfall is anticipated for the north-eastern parts of the country but below-normal in the south-west during mid-autumn to early winter. Temperatures are expected to be above-normal in the central and north-eastern regions of the country but below-normal in the south-west. 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. Rain-fed crop production

Crop management

- 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.

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 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 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. Flooding

Heavy rainfall raises the water level. When the water level is higher than the river banks 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 river banks 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.
- Appling 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.

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.

I. 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.

J. Severe thunderstorms/flash floods

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 before rainy season, and after each event.

Flooding occurred in provinces causing damages to crops and infrastructure in some areas. This might affect crop yields in these areas. The Department will continue to monitor these areas and provide updates. The veld and livestock are in reasonable to good condition. The seasonal forecast anticipates above-normal rainfall in the north-eastern parts of the country but below-normal in the south-west during mid-autumn to early winter. Temperatures are expected to be above-normal in the central and north-eastern regions of the country but below-normal in the south-west.

With the current conditions in mind as well as the seasonal forecast, farmers are advised to continue to put measures in place for pests and diseases. It is also important for farmers to follow the weather forecast regularly to make informed decisions. Farmers using irrigation should comply with water restrictions in their areas. Farmers must continually conserve resources in accordance with the Conservation of Agricultural Resources Act 1983, (Act No. 43 of 1983).

Farmers are advised to keep livestock in balance with carrying capacity of the veld, 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 conducive for veld fires remain in winter rainfall areas. Therefore, the maintenance of fire belts should be prioritized as well as adherence to veld fire warnings. 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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