agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

National Agro-meteorological Committee (NAC) Advisory on the 2019/20 summer season
Statement from Climate Change and Disaster Management
05 DAFF 2019

03 February 2020

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

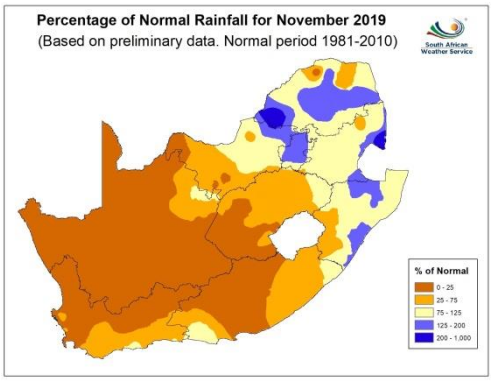


Figure 2

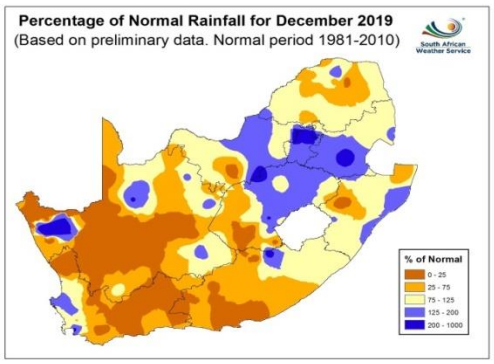


Figure 3

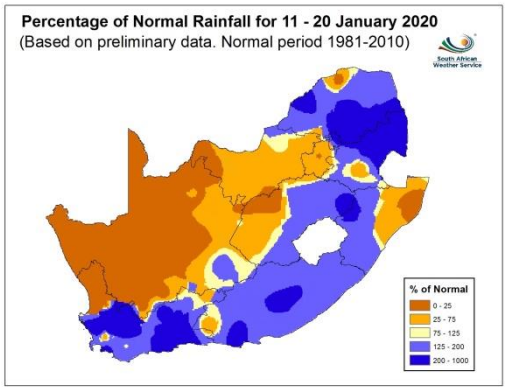
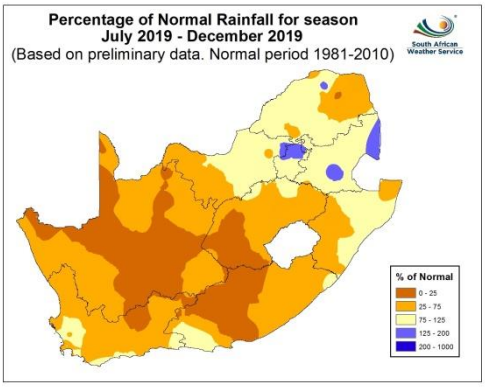
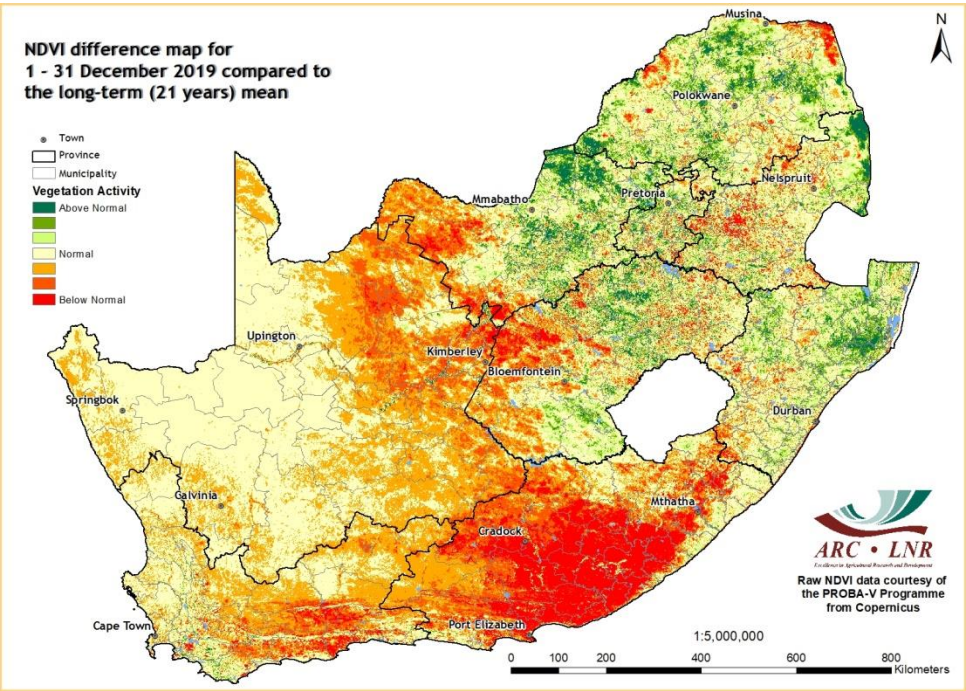


Figure 4



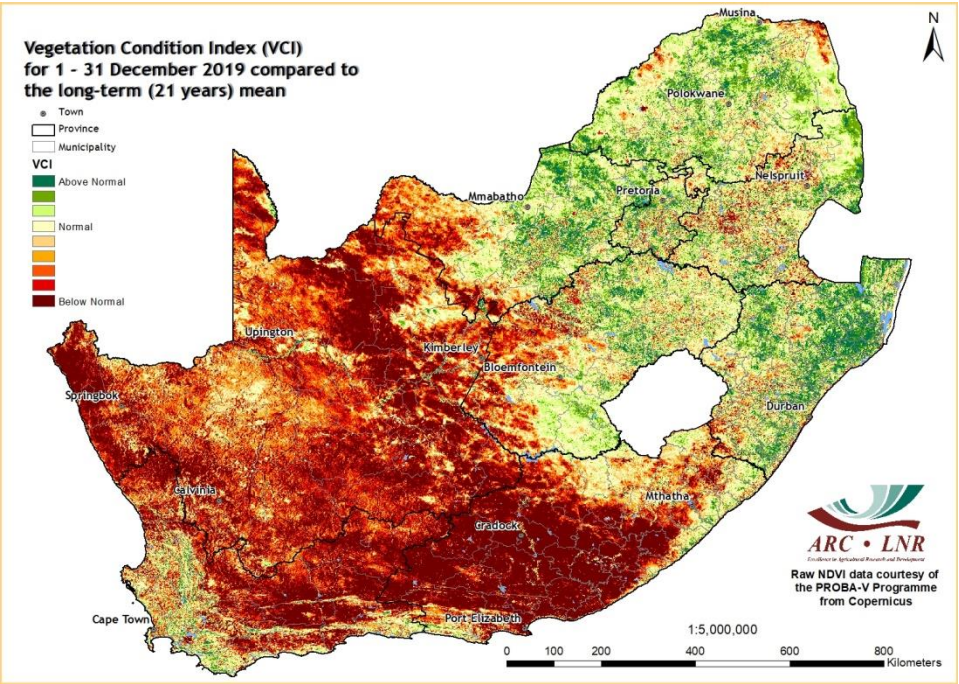
During November rainfall received was below normal over the central and western parts of the country but normal to above normal in the east **(Figure 1)**. Normal to above normal rainfal continued in the eastern parts in December becoming below normal in the west **(Figure 2)**. Mid-January 2020 received above normal rainfall over the southern and eastern parts of the country, remaining dry in the west **(Figure 3)**. July to December received below normal rainfall becoming normal in the north-eastern parts and in KwaZulu-Natal **(Figure 4)**.

NDVI map: December 2019 compared to the long-term mean



Some areas in the central and eastern parts of the country experienced above normal vegetation activity. The western Free State, western North West, eastern parts of the Northern Cape, the Eastern Cape and parts of the Western Cape experienced poor vegetation activity.

VCI map: December 2019 compared to the long-term mean



Far below normal vegetation conditions were observed over the western half of the country. The eastern regions of the country experienced normal to above normal vegetation conditions.

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

II. CONDITIONS IN THE PROVINCES DURING DECEMBER/JANUARY

Eastern Cape
Nil Report.

Free State
Above normal rainfall was received over the eastern parts becoming normal to below normal in remaining areas. Planted maize is in good condition. Very hot conditions damaged wheat crop that was at grain filling stage especially the one under rainfed. The veld and livestock have improved due to rain received. Summer pastures are in good condition especially those under irrigation. There were reports of flash flooding in Bloemfontein, Bloemspruit and in Nketoana Local Municipality. The average level of major dams has decreased as compared to the previous year during the same period (69% in 2020; 71% in 2019).

Gauteng
Nil Report.

KwaZulu-Natal
Near normal rainfall was received with below normal rainfall patches. Along the coast above normal rainfall was received. The drought monitor for December indicates ten of the eleven districts either remaining at or improving to minor drought, with Ugu staying at drought advisory. Some early-planted maize under irrigation has reached tasselling stage. Dryland maize is at various stages of growth, and is doing well. Soya crops are also healthy. Summer pastures are green and growing. There are pastures that have been cut, baled and wrapped for silage. Irrigation has been used sparingly on very hot days to reduce heat stress, otherwise, rains have helped. Veld is generally green but very little bulk accumulated. Livestock condition across all sectors has improved, although there are isolated pockets in the communal areas where drought is still prevalent. The average level of major dams has increased as compared to the previous year (58% in 2020; 55% in 2019).

Limpopo
Normal to below normal rainfall was received. Dryland farmers planted summer crops in areas that received good rains. Very hot conditions and lack of water damaged vegetables in parts of Mopani District. The veld is recovering but remains poor where rainfall has been low. Livestock is in reasonable condition except in some areas of Lephalale and Mogalakwena where rainfall has been insufficient. Rivers that were dry are now flowing however Waterberg did not receive good rain, as a result water levels remain low in many areas of the district. The average level of major dams has slightly increased (61% in 2020; 60% in 2019).

Mpumalanga
Normal to above normal rainfall was received. Maize and soya beans are in good condition both irrigated and rain-fed in Gert Sibande and Nkangala Districts. In Bohlabelo vegetables are also in good condition. Horticultural crops such as mangoes, macadamia nuts, pecan nuts are being harvested in the lowveld. The veld is in reasonable to good condition. Due to rain received, livestock condition is good in Gert Sibande and Nkangala Districts. In the Bohlabela district livestock is being provided feed where rain has been insufficient. Pasture growers have not yet started bailing as they are waiting for the grass to fully grow. As a result of the drought experienced last year, there are many farmers who decided to convert their fields from maize to growing hay. Fall army worm was reported in the Mkhondo and Chief Albert Luthuli municipalities and the department is conducting an assessment. Dams levels are improving in the entire

province, though more rain is still needed to fill up the dams. The average level of major dams has increase to 75% in 2020 as compared to 68% of 2019.

Northern Cape
Nil Report.

North West
Above normal rainfall was recorded in the eastern parts, in other areas the rain was near normal with patches of below normal. Crop farmers are busy with soil preparation although it is late for some crops. Livestock conditions have improved from fair to good due to good rains received. Livestock mortalities were reported due to suspected consumption of poisonous plants in a village in Dr Ruth Segomotsi Mompati District. The average level of major dams has increased (67% in 2020; 57% in 2019).

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 2020/01/27

III. SADC REGION

The January 2020 Famine Early Warning Systems Network (FEWS NET) reported that the period January to March is the typical peak of the lean season across most Southern African countries. This year's lean season is more severe than typical due to the impacts of last year's drought and poor rainfall to date for the 2019/20 season in many areas of the region. As a result, the number of households facing Crisis (IPC Phase 3) in DRC, Zimbabwe, Mozambique and Madagascar is higher than normal. In DRC, assistance needs are mostly driven by high levels of conflict. Humanitarian food assistance is improving access to food in some part of region to Stressed (IPC Phase 2) outcomes. The harvest in April/May is expected to improve food availability across most of the region; at least in the short-term; however, in areas worst affected by the consecutive years of dryness, Crisis (IPC Phase 3) outcomes are expected in the post-harvest period. The start of the 2019/20 season was characterized by erratic and poor rainfall mostly in central and southern parts of the region. The largest rainfall deficits as of January 20 are in southern Madagascar and Mozambique, Lesotho, and parts of Zimbabwe, South Africa, and Zambia. Long dry spells and high temperatures in southern Mozambique and areas of Zambia and Zimbabwe have led to permanent crop wilting and replanting is necessary. Vegetation conditions have slightly improved although remain well below the median. International forecasts expect rainfall to be below average for the season with drought conditions continuing in most southern and central sectors of the region. On the contrary northern parts of the region are expected to have average to above average rainfall.

Furthermore FEWS NET indicated that in December and January, heavy rainfall resulted in flash flooding in Malawi and northern Mozambique, and Madagascar. The flooding damaged dwellings and infrastructure, destroyed some cropping areas, and temporarily disrupted livelihoods. Tropical Cyclone Belna which hit Madagascar's north-western coast on December 10 displaced a number of households and destroyed social infrastructure. For the rest of the season, there is an increased likelihood for an above average number of cyclone strikes in Madagascar and Mozambique. Across the region, staple food prices are increasing and are well above average as

a result of last year's drought, restricting regional supply and more households than normal relying on market purchases for food. In Zimbabwe, in addition to the restricted supply, the poor macro economy is also significantly limiting maize grain and meal supply and increasing prices at extremely high rates. In Malawi, November prices ranged from about 60 to 100 percent above the five-year average and in Mozambique 40 to 75 percent above the five-year average. In DRC, market supply has been impacted by conflict and in southern DRC the limited regional supply. Maize grain prices increased by 30 to 40 percent in Kassai and Beni markets between October and November while in Madagascar there are reports of a decline in market supply and price increases for cassava and sweet potatoes. At this time of year, poor households typically earn incomes for staple purchases through agriculture labor activities including labor for land preparation, planting, and weeding. However, with poor seasonal performance in areas of the region, those activities are limited and very few meaningful opportunities are available. In a few cases where labor supply is in excess, this is driving below average wage rates. In areas where poor household's own livestock, households are atypically selling livestock for income. Despite household efforts to earn incomes to purchase food, incomes are below average across southern and central areas of the region. In Malawi, despite that the rainy season has generally performed well, labor supply is above average is depressing wages.

[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

Good rainfall was received in some areas of the central and eastern parts of the country in December and January. Planted crops are in good condition; while the veld and livestock are improving in areas that received good rain. Drought remains in several provinces. The average level of major dams has increased in the majority of provinces. Over SADC food insecurity is more severe due to the impacts of last year's drought and poor rainfall to date for the 2019/20 season in many areas of the region.

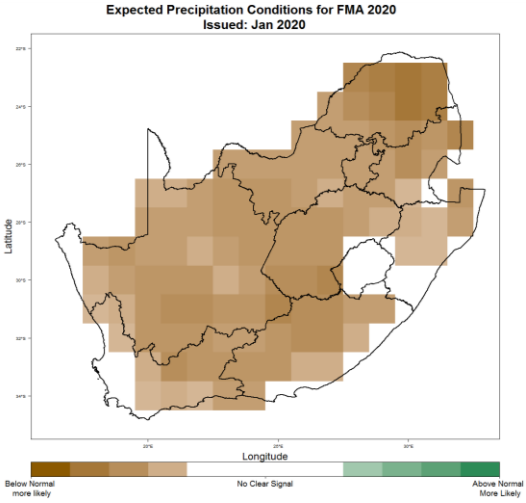
IV. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: February to June 2020

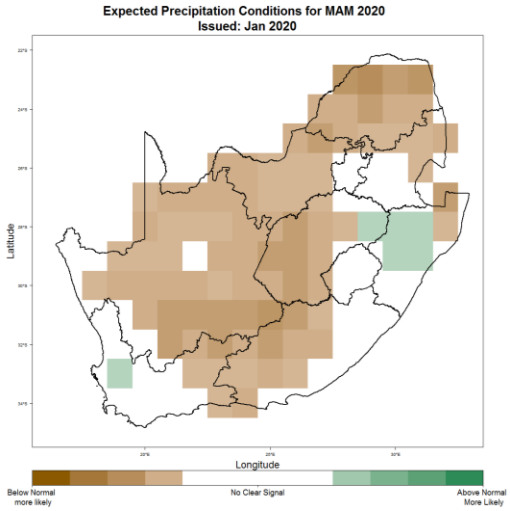
State of Climate Drivers

The El Niño-Southern Oscillation (ENSO) is currently in a borderline weak El Niño state and the forecast indicates that it will most likely remain at the border between the weak El Niño and neutral states for the rest of the summer season and early autumn. With the neutral ENSO once again heavily favoured for the coming seasons, forecast uncertainty is relatively high.

Figure 1 – Rainfall



The rainfall forecast for early-autumn (Feb-Mar-Apr) and mid-autumn (Mar-Apr-May) indicates enhanced probabilities of below normal rainfall over most of the country with the exception of the eastern parts during mid-autumn which favours above normal rainfall conditions.



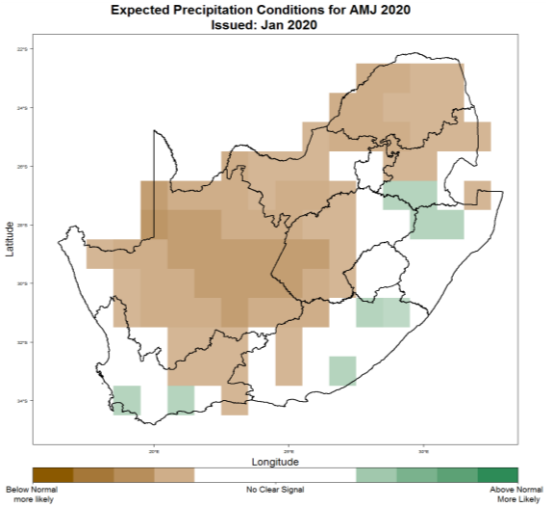
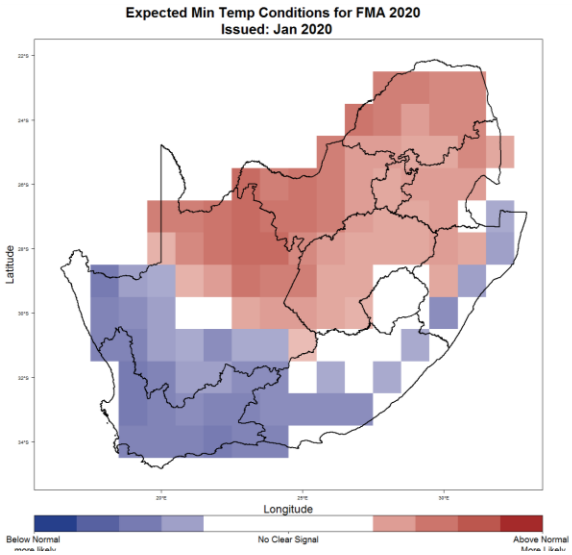
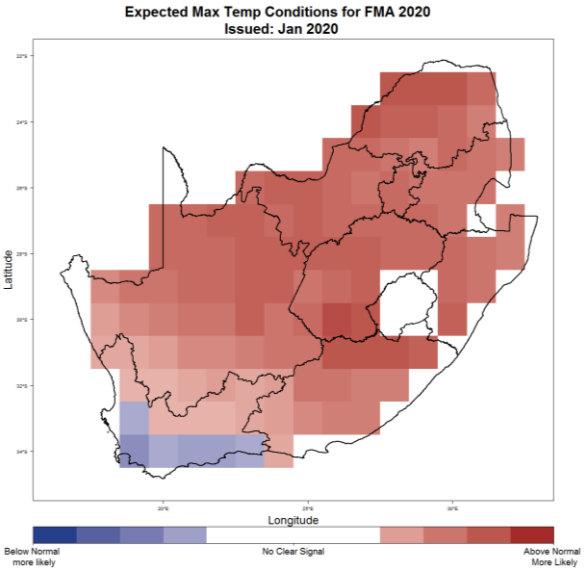


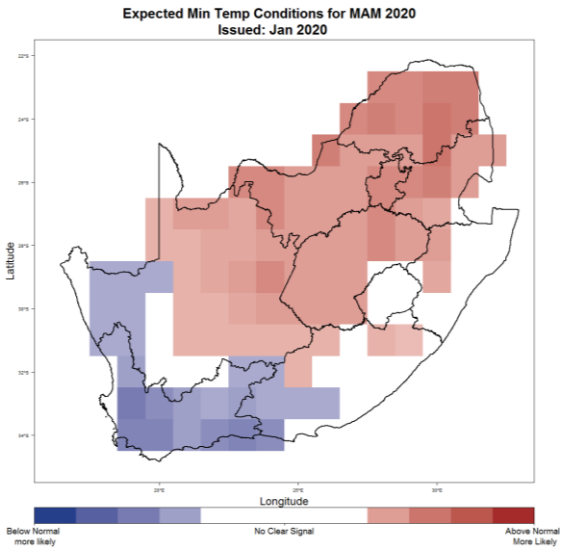
Figure 2 - Minimum and Maximum temperatures

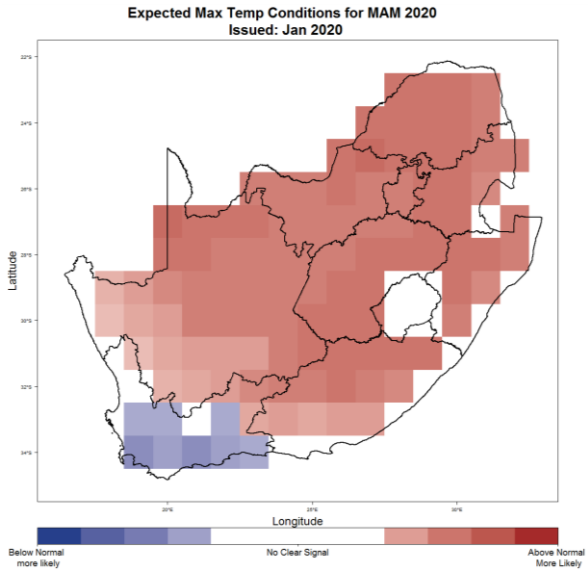
Minimum

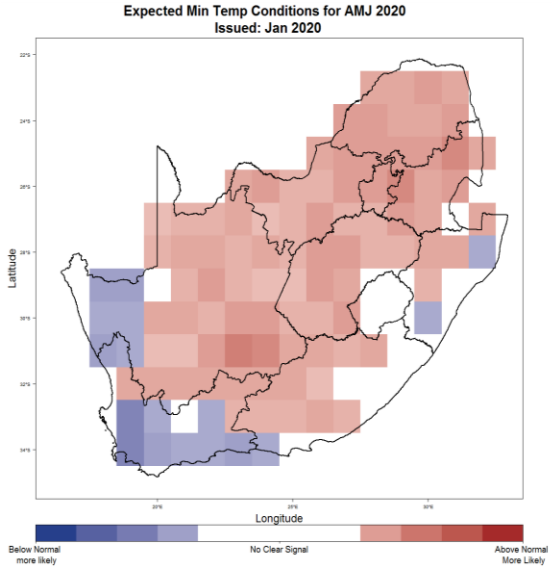


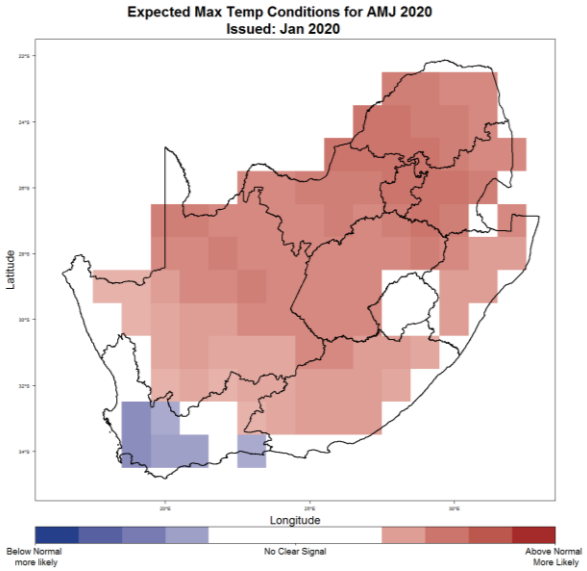
Maximum











Mostly higher than normal temperatures are expected for the rest of summer and early autumn with the exception of the far south-western parts that indicate lower than normal minimum temperature throughout late-summer and autumn.

In summary, below normal rainfall is anticipated with above normal temperatures. However above normal rainfall is expected in the eastern parts towards mid-autumn; also the south-western region can expect below normal minimum temperatures. 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. Rain-fed crop production

Crop management

- Adjust planting density accordingly.
- Consider mulching to minimize evaporation.
- Control weeds regularly.
- Consider a conservative fertilizing strategy during dry conditions.
- Consider organic fertilization.
- Scout for pests and diseases regularly and control where necessary.
- Practice water harvesting techniques e.g. construction of basins, contours, ridges.

B. Irrigation farming

The current drought in the western parts of the country, as well as in areas that have implemented water restrictions, continues to have a negative impact on irrigation in some areas.

- 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 directly 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 (very important)

- 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 (very important)

- 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

- Farmers should regularly scout and monitor for pests and diseases especially those associated with high rainfall and hot conditions and also contact the local agricultural office for advice on best control measures.
- Farmers should further implement phytosanitary measures to control regulated pests after detection.

Livestock

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

G. Veld fires (Very important)

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 fires 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 consider relocating livestock.

Poultry

- Provide cool, clean, quality drinking water to your poultry. Water will help keep birds cool.
- Always make sure 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. 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, after each event.

J. 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.

Copious rains have resulted in many areas beginning to improve but drought persists in several provinces. Below normal rainfall is anticipated with above normal temperatures. However above normal rainfall is expected in the eastern parts towards mid-autumn. Also, the south-western region can expect below normal minimum temperatures.

With the current conditions in mind in most areas as well as the drier end of summer forecast, farmers are advised to put measures in place for pests and diseases. They must continually conserve water and other 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.

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. The risk of veld fires remains, particularly over the western parts of the country where it is drier. Therefore, maintenance of fire belts should be prioritized as well as adherence to veld fire warnings in all areas. Episodes of flooding resulting from summer weather systems remain likely and preventative measures should be in place. Heat waves have already occurred since the beginning of summer and are likely to re-occur especially as above normal maximum temperatures are anticipated. Measures to mitigate these should remain 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: www.daff.gov.za and www.agis.agric.za.

For more information contact:-

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