agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

National Agro-meteorological Committee (NAC) Advisory on the 2017/18 summer season
Statement from Climate Change and Disaster Management
05 DAFF 2017

29 January 2018

In the light of the seasonal outlook 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

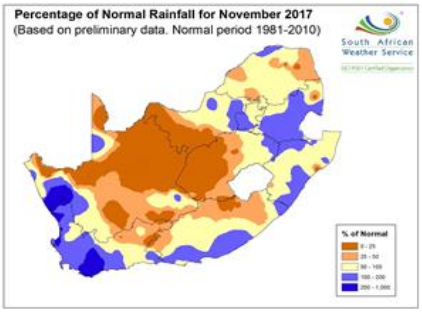


Figure 2

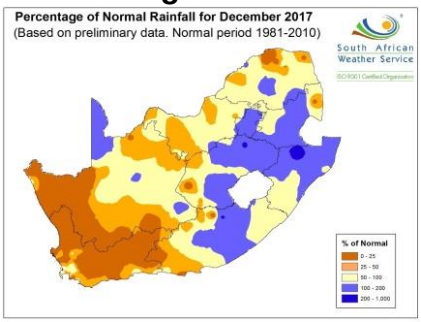


Figure 3

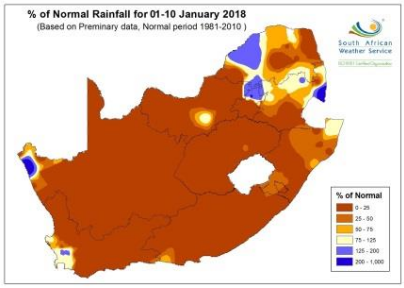
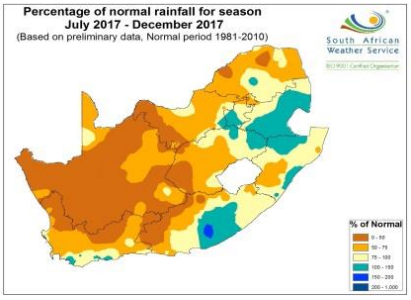
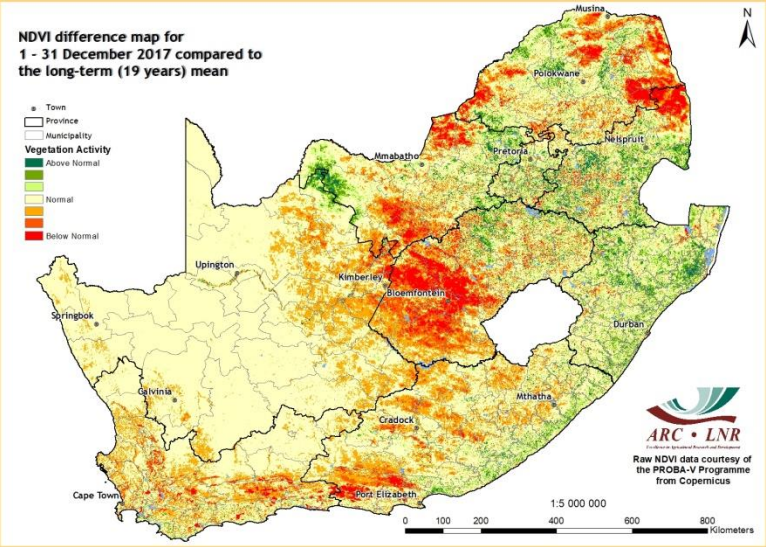


Figure 4



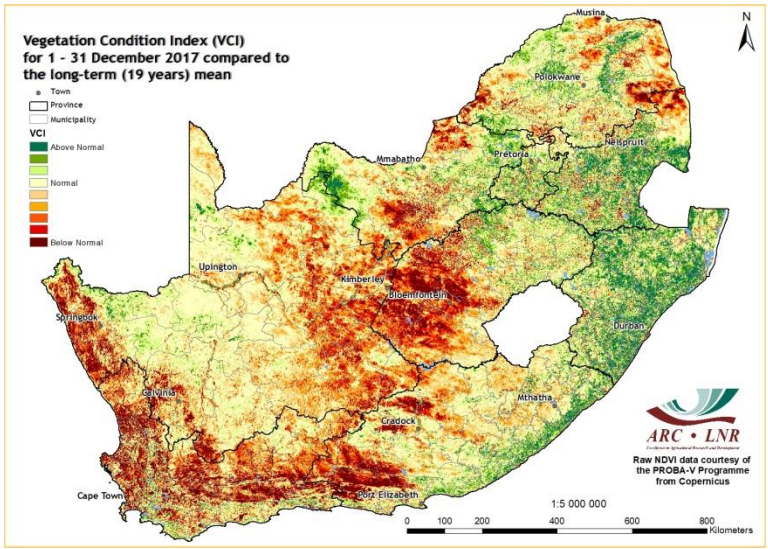
During November 2017, near normal to below normal rainfall was received over most parts of the country, with above normal rainfall only received along coastal areas as well as over Mpumalanga and parts of Gauteng, North West and Limpopo Provinces **(Figure 1)**. For December 2017, near normal to below normal rainfall was received, with above normal rainfall occuring over the north-eastern parts of the country as well as parts of the Eastern Cape Province **(Figure 2)**. The first ten days of January 2018 received below normal rainfall over the majority of the country with above normal rainfall over the western parts of Limpopo and northern parts of Gauteng Provinces **(Figure 3).** For the season July to December 2017, below normal rainfall was received over most parts of the country with patches of above normal rainfall over parts of Mpumalanga, Eastern Cape, Gauteng and Free State Provinces **(Figure 4).**

NDVI map December 2017 compared to the long-term mean



Much of the Free State and some distinct areas of Limpopo, North West and Eastern Cape experienced low vegetation activity during December.

VCI map for December 2017 compared to the long-term mean



The VCI map for December indicates that dry conditions were still present over much of the Western Cape. The map also indicates below-normal vegetation conditions over the south-western Free State, the western and northern parts of the Eastern Cape as well as some parts of the Northern Cape.

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

II. CONDITIONS IN THE PROVINCES DURING DECEMBER 2017/JANUARY 2018

Eastern Cape
Rainfall received was near normal with some patches of above normal. Crop conditions are reported as good in some parts of the province but poor in some areas of Chris Hani, Joe Gqabi, Alfred Nzo and Sarah Baartman. The livestock condition is a mix of poor and fair but there are areas that reported very poor conditions such as in Sarah Baartman and Joe Gqabi. Pasture conditions are reportedly poor to very poor but reasonable in some areas in Sarah Baartman. The condition of rangeland is reasonable to poor but very poor in the central regions of the province and in parts of Sarah Baartman. Irrigation is reported to be at critical levels with no irrigation at all in some areas. Cases of Rabies have been reported. The level of major dams is nearly similar to the previous year (59% in 2018; 58% in 2017).

Free State
Below normal rainfall was received over most parts with the exception of some northern and eastern parts of the province where above normal rainfall was received. Maize and potatoes are in good condition. Livestock is in reasonable to good condition, however, there were reports of livestock mortality in Winburg, Ficksburg and Botshabelo due to lack of feed. Pastures are in good condition due to the rainfall. Veld fires have been reported in Hertzogville and Boshof. The average level of major dams has increased as compared to the previous year (65% in 2018; 56% in 2017).

Gauteng
The province received above normal rainfall. The natural pasture is good throughout the province. The livestock conditions are very good. General condition for maize crops in the province is very good whereas in some areas vegetable crops were affected by heat waves. The average level of major dams has increased when compared to the previous year during the same period (94% in 2018; 87% in 2017).

KwaZulu-Natal
The interior received scattered fair to good rains through December, however the coastal areas received far greater falls with further flooding. The drought monitoring map indicates deterioration in the drought status of most districts. Dryland crops are showing signs of “drought stress,” wilting and dried/burnt leaf tips. Summer pastures are improving in the coastal and immediate adjacent interior, but remain quite dry over the western and northern interior. Irrigated pastures are marginally better than dryland in these interior areas. The veld and other vegetation continue to show a very slow recovery. Livestock condition has not improved since December due to the lack of good grazing in many areas. Goats and sheep are maintaining condition. Surveillance and monitoring is ongoing for the Fall Army Worm and Avian Influenza. Hail damage incidents were reported in the Inkandla area of Zululand, affecting a small group of vegetable farmers. The average level of major dams has increased as compared to the previous year during the same period (50% in 2018; 47% in 2017).

Limpopo
Rainfall received was generally near normal. Grain crop farmers have planted while vegetable farmers prepared land. Livestock condition is deteriorating due to lack of grazing in most areas. The veld on the other hand is in poor condition particularly in communal areas and the poor conditions were further exacerbated by heat waves. Wind damaged tunnels in parts of Modimolle while veld fires burnt grazing in the Malamulele area. Poultry farmers remain on alert for Avian Flu and tomato producers are being affected by Tutuba Absoluta. The average level of major dams has slightly increased to 65% in 2018 as compared to 61% of 2017 during the same period.

Mpumalanga
Rainfall received was above normal in December. Farmers are harvesting vegetables and livestock conditions have improved. The veld condition is good while a hail storm was reported in Ehlanzeni District. The average level of major dams has increased to 77% in 2018 as compared to 65% of 2017.

Northern Cape
Most parts received near normal to below normal rainfall. The general condition of veld and livestock are reasonable to good except in the Namakwa region where they are poor. In some areas there is shortage of stock water. Many windmills and engines are worn out. Boreholes are still running dry. The wine and dry grapes are in good condition. The level of major dams has decreased as compared to last year this time (76% in 2018; 92% in 2017).

North West
The province received near normal to below normal rainfall. Heat waves affected the dam levels and grazing, however the livestock conditions are fair to good. In some areas there were goat mortalities due to lightning. In Dr Ruth Segomotsi Mompati District veld fires burnt grazing. The level of major dams was reported to be at 67%, which is the same as the 2017 level during the same period.

Western Cape
The province continues to receive below normal rainfall. The current wheat crop is much lower and smaller fruit and grape harvests are imminent. The overall water level of state dams in the province remained low compared to the previous year, 25% in 2018 and 40% in 2017.

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 2018/01/22

III. AGRICULTURAL MARKETS

Livestock domestic markets
According to FNB, beef prices maintained sideways to softer post December holidays and the short to medium term prices are generally positive on the back of tight supplies due to herd rebuilding. The lamb and mutton prices sowed due to seasonal decline in demand and prices are sharply higher. It is expected that prices will rebound slightly on improved demand during month end. Pork prices weakened early in the year due to softer demand associated with post December holidays period. Poultry prices also weakened due to decline in demand, nonetheless the tight domestic stocks help limit further declines.

Producer prices for selected livestock commodities	Beef	Mutton	Pork	Poultry
Open market: Class A / Porker / Fresh whole birds (R/kg)	48.19	73.47	31.48	27.30
Open market: Class C / Baconer / Frozen whole birds (R/kg)	43.77	59.74	29.16	26.93
Contract: A2/A3* / Baconer/ IQF (*includes fifth quarter) (R/kg)	47.33	81.28		25.23
Import parity price (R/kg)	44.78	59.96	27.29	15.31
Weaner Calves / Feeder Lambs (R/kg)	35.53	39.89		

FNB: 2018/01/24

NB: Users are advised that these are just indicative prices therefore it is imperative that clients investigate their own individual basis value when marketing their products (livestock and grain).

IV. SADC REGION

The January 2018 Famine Early Warning Systems Network report indicates that most parts of the region continued experiencing Minimal (IPC Phase 1) or Stressed (IPC Phase 2) food insecurity outcomes in December. This is an improvement from previous years, when many households experienced food deficits, requiring humanitarian assistance during this time. Crisis (IPC Phase 3) outcomes remain in parts of the DRC, marginal southern and northern areas of Zimbabwe, southern Madagascar, and central Mozambique. Areas in Crisis (IPC Phase 3) in Zimbabwe, Madagascar, and Mozambique are marginal production areas where poor households chronically experience food deficits, even in normal years. Rainfall during the current cropping season has been mixed in the region. A few countries have received average to above average cumulative rainfall, while in several other countries cumulative rainfall has been below-average and erratic. Moisture deficits and heavy rainfall could have an adverse impact on crops and agricultural activities. Below-normal income levels from agricultural labor have resulted from the late start of season and poor rainfall performance, especially in parts of Zimbabwe, Lesotho, and Mozambique. During this time households usually use their income to purchase staples during the peak lean season. Due to last season's above-average harvests, staple prices in Zimbabwe, Malawi, and Mozambique remain atypically lower than both the five-year average and the same period last season. These price trends have improved the purchasing power of poor households that have depleted their cereal stocks and are relying on market purchases. However, as poor seasonal rainfall performance persists, households with surplus stocks will likely reduce the amount that they are selling, potentially triggering a maize price increase during the peak lean season.

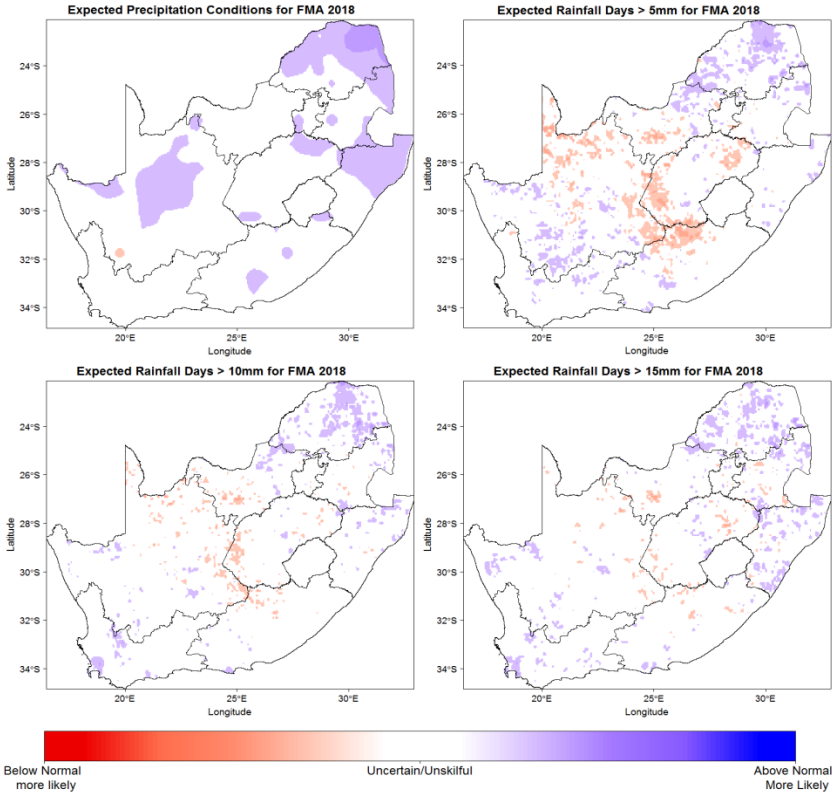
[The Integrated Food Security Phase Classification (IPC) is a set of standardized tools that aims at providing a "common currency" for classifying the severity and magnitude of food insecurity.]
Source: http://www.fews.net/southern-africa

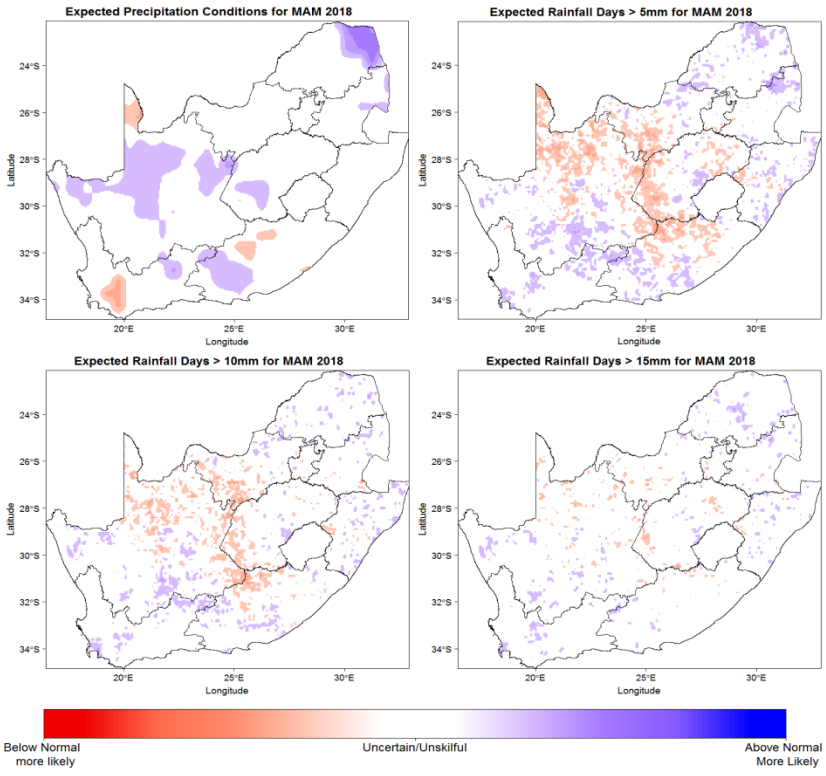
Summary of the reports
Below normal rainfall was received in the south-western parts of the country becoming near normal in other areas with patches of above normal. Water restrictions continue to remain in place in several Provinces. Livestock and veld conditions are generally reasonable but poor in some Provinces. Veld fires have been reported in Free State and North West. Poultry farmers are continuing to monitor for Avian Influenza, while farmers in parts of Limpopo are being affected by Tomato Absoluta. There were livestock mortalities in North West due to lightning. Dam levels have increased in the majority of Provinces as compared to the previous year during the same period. Over SADC, most parts are experiencing Minimal or Stressed food insecurity outcomes in December. This is an improvement from previous years, when many households experienced food deficits, requiring humanitarian assistance during this time.

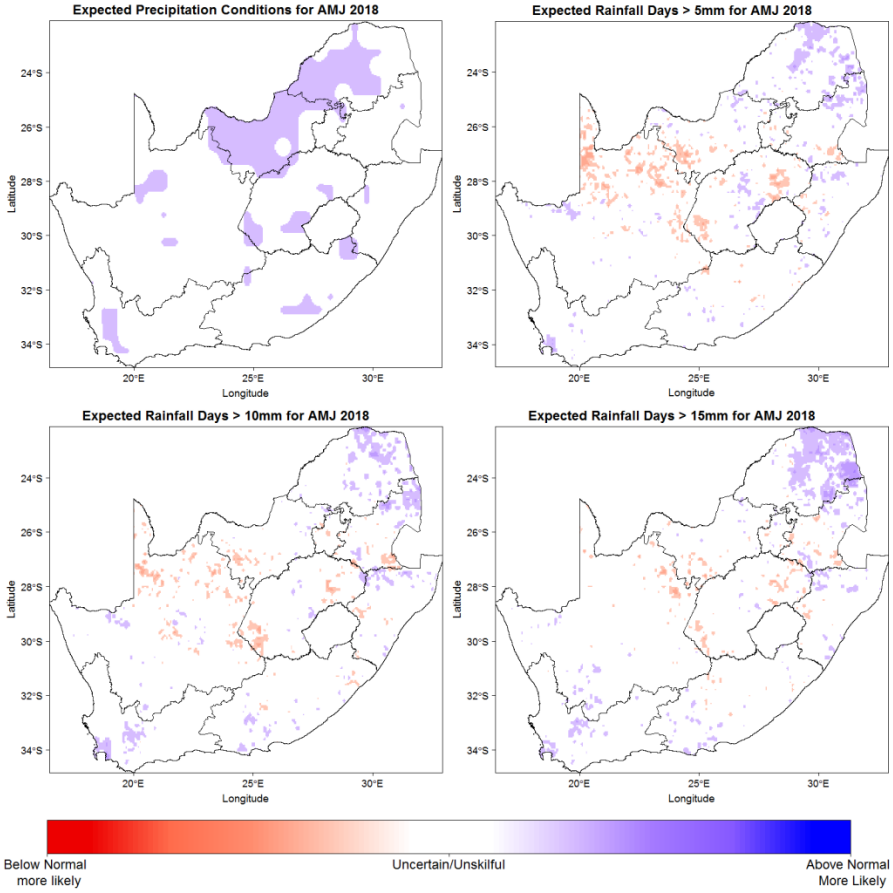
V. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: February to June 2018

Figure 1 – Rainfall

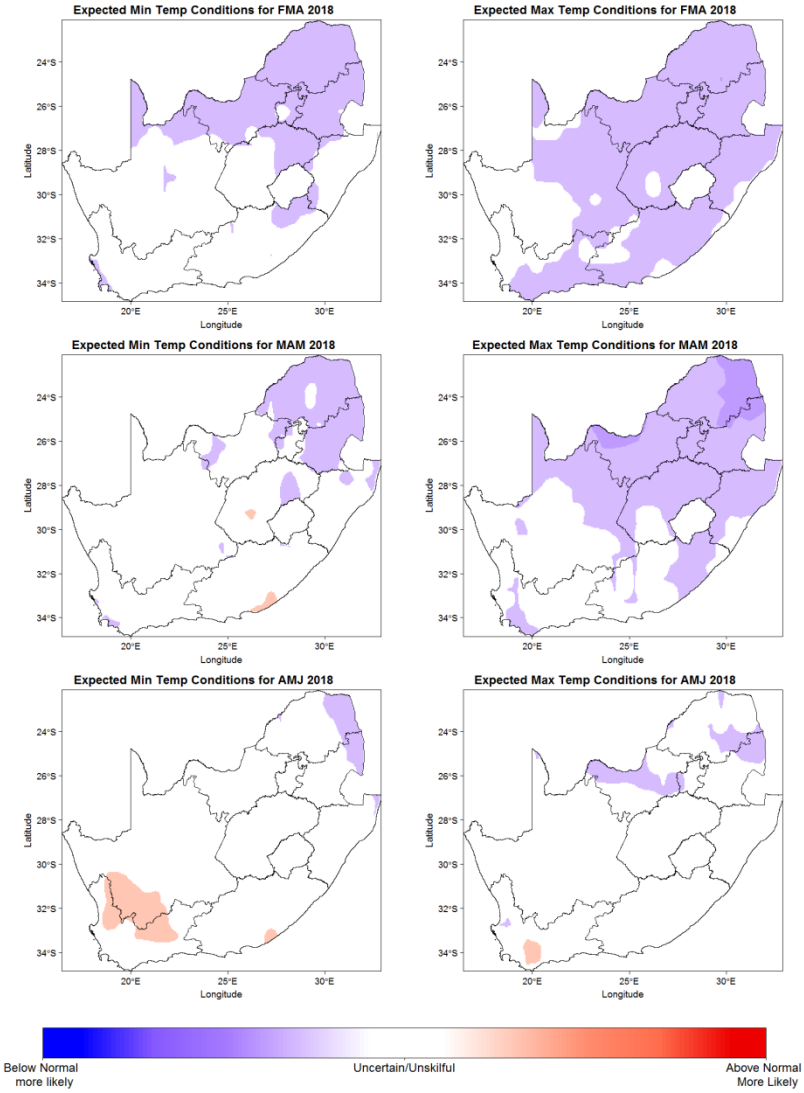






The forecasting system indicates above-normal rainfall over the far north-eastern parts of the country as well as over parts of the interior during early autumn (Feb-Mar-Apr). It is expected that the total rainfall for these areas would rather be more frequent rainfall events than more intense events. During mid- (Mar-Apr-May) and late autumn (Apr-May-Jun), the south western interior are expected to experience above normal rainfall, and parts of the Western Cape to receive below-normal rainfall totals.

Figure 2 - Minimum and Maximum temperatures



Currently temperature predictions mainly indicate on average lower temperatures. A notable exception however, is expected over parts of the Western Cape where generally higher temperatures are expected during autumn.

State of Climate Drivers

The El Niño-Southern Oscillation (ENSO) is expected to remain in a weak La Niña phase through to early autumn (Feb-Mar-Apr). This suggests above-normal rainfall is to be expected later in the summer rainfall season which can extend towards early autumn for the far north-eastern parts of the country. Some caution is advised however, as circulation over the equatorial Pacific Ocean does not resemble a typical La Niña phase and as such introduces a minor amount of uncertainty in the current forecast.

In summation, rainfall is anticipated to be above normal over the far north-eastern parts of the country as well as over parts of the interior during early autumn. Temperatures are anticipated to be below normal but warmer over parts of the Western Cape. 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

- Consider mulching to minimise evaporation.
- Always eradicate weeds.
- Scout for pests and diseases regularly and control where necessary.
- Use overhead sprinkler irrigation.
- Practice water harvesting techniques e.g. construction of basins, contours, ridges.

B. Irrigation farming

Water restrictions remain in place in several provinces and this continues to have a negative impact on irrigation.

- 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.
- Irrigate with the correct amount, avoid over-irrigation because that can create problems e.g. water logging and diseases.
- 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.
- **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.
- Use grey water in gardens when necessary.
- 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.
- Assessment of vegetation condition and analysis of soil samples can benefit the decision for supplement composition.
- Sell mature, unproductive, 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 create and maintain firebreaks. 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 consider 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. Severe thunderstorms/flash floods

Building resilience:

- Identify resources/facilities within 50km 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. 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: acts as blanket, traps eroded particles and reduces 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.

Drought continues in the Western Cape, parts of the Northern Cape and Eastern Cape, and the seasonal forecast indicates above normal rainfall during early autumn over parts of the interior and the far north-eastern parts of the country. The above normal rainfall is also anticipated for mid and late autumn over the south-western interior of the country, but parts of the Western Cape can anticipate below normal rainfall. Temperatures are anticipated to be cooler but warmer than normal over parts of the Western Cape during autumn. With the seasonal forecast in mind, and the current conditions, farmers are advised to continually conserve water and other resources in accordance with the Conservation of Agricultural Resources Act 1983, (Act No. 43 of 1983).

Many summer rainfall areas have continued to receive rainfall, but it remains insufficient. Farmers using irrigation should comply with water restrictions in their areas. As above normal rainfall is anticipated for some regions of the country i.e. interior and north-east, farmers are encouraged to put measures in place to control pests and diseases associated with wet conditions. In addition, farmers should also follow the weather and climate forecast regularly so as to make informed decisions.

Livestock farmers are advised to continue to have precautionary measures in place. These include provision of additional feed such as relevant licks, maintenance of livestock in accordance with available grazing, provision of enough water points in the farm where possible, as well as shelter during bad weather conditions. Episodes of localized flooding resulting from thunderstorms remain likely and preventative measures should be in place. Heat waves are also likely to occur and therefore measures to combat these should be in place. Farmers are encouraged to implement measures 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:-

DAFF, Directorate: Climate Change and Disaster Management Private Bag X93 Pretoria 0001 Tel:012 309 5722/23; Fax: 012 309 5878 Email: MittaA@daff.gov.za	SAWS: Private Bag X097 Pretoria 0001 Tel: +27 (0) 12 367 6000 Fax: +27 (0) 12 367 6200 http://www.weathersa.co.za	ARC: Institute for Soil, Climate and Water Private Bag X79 Pretoria 0001 Tel: 012 310 2500 Fax: 012 323 1157 Email: iscwinfo@arc.agric.za, http://www.arc.agric.za