



agriculture, forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

National Agro-meteorological Committee (NAC) Advisory on the 2015 winter season Statement from Climate Change and Disaster Management 08 DAFF 2015

28 April 2015

In the light of the seasonal outlook as produced by the South African Weather Service (SAWS) and other centres, 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 radio stations and farmers' days in disseminating the information.**

I. CURRENT CONDITIONS

Figure 1

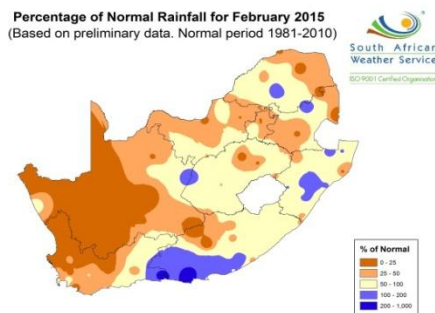


Figure 2

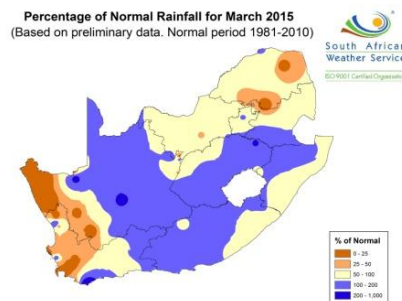


Figure 3

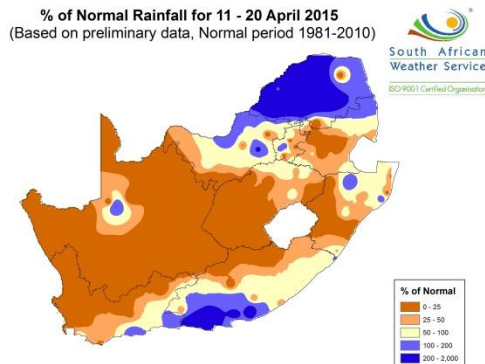
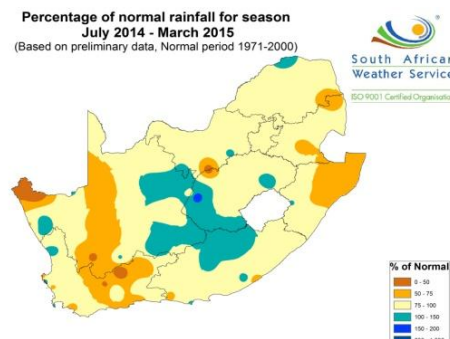
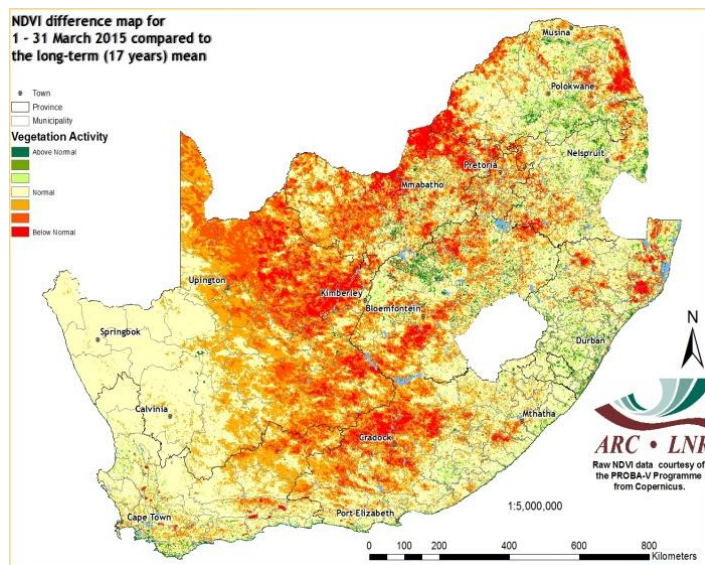


Figure 4



In February, normal to below normal rainfall was received in most areas except for the southern coastal areas of the Eastern Cape Province where it was above normal (**Figure 1**). In March, rainfall increased, resulting in mostly the central parts receiving above normal rainfall while the remaining areas received near normal to below normal rainfall (**Figure 2**). For the second ten days of April, above normal rainfall was received in parts of the Eastern Cape and Limpopo, elsewhere it was near normal to below normal (**Figure 3**). For the season July 2014 – March 2015, near normal rainfall was received in most areas with patches of above normal over the central parts and patches of below normal rainfall over the western and eastern regions (**Figure 4**).

NDVI difference map for March 2015 compared to long-term mean



Vegetation activity is below normal mainly over most of the central parts of the country and parts of KwaZulu-Natal and Limpopo provinces as compared to the long term mean. Over most of the western and eastern parts of the country the vegetation activity is normal.

II. CONDITIONS IN THE PROVINCES DURING MARCH 2015

Eastern Cape

Rainfall received was above normal but near normal in the east. However, parts of Joe Gqabi and Sarah Baartman Districts were very dry. The province reported fair to good crop conditions, but very good in Nelson Mandela Metropolitan and Sundays River Valley municipalities. Overall livestock is in good condition but very good in Sundays River Valley, Nelson Mandela Metropolitan and Mbizana municipalities. Furthermore, poor conditions were observed at Baviaans local municipality in the Karoo. The greater part of the province showed reasonable pasture conditions but the drier areas of Maletswai in Joe Gqabi, Lukanji, Baviaans, Makana and Koukamma have good pasture conditions. Good conditions of rangeland were reported at Matatiele, Makana and Great Kei local municipalities otherwise generally the rangeland condition is reasonable in the province. Very dry rangeland conditions were reported at Senqu, Ndlambe, and Ikhwezi and Koukamma local municipalities. An incident of a lightning strike resulted in cattle mortalities in Cathcart. Critical conditions of stock water shortages were reported in parts of Joe Gqabi and also in parts of Amathole District. The average level of major dams was at 81% in 2015 as compared to 84% of 2014 during the same period.

Free State

Much of the province received above normal rainfall. However, yield of sunflower and maize is critical approaching the harvesting stage with the drought setting in. Veld and livestock are in good condition especially in Winburg and Verkeerdevlei. The first frost of the season has been reported in Wepener, Ficksburg, Fouriesburg, Bloemfontein, Bethlehem, QwaQwa and Fauresmith and it has destroyed crops such as pumpkins and green beans. Farmers are strongly advised to take advantage of precipitation received to prepare for winter grains. The Rabies vaccination campaign has been conducted in the Thabo Mofutsanyane and Xhariep Districts. The level of major dams has decreased compared to the previous year (84% in 2015; 95% in 2014).

Gauteng

Most parts received near normal rainfall. The livestock and veld condition is average to poor. Vegetables remain in poor condition in the Holfontein (Midvaal), City of Tshwane, Winterveldt and the Western Region (Elandsfontein). Maize in Midvaal is still in poor condition. Most farmers throughout the province are preparing land for planting winter crops. The lack of water sources for agricultural activities remains a challenge. Most water sources have dried up. The average level of major dams was at 97% in 2015, as compared to 100% of 2014 during the same period.

KwaZulu-Natal

Good rains have fallen in most parts of the province during the latter half of March, however not enough to alleviate the drought situation in the worst affected areas. Severe drought conditions remain in Zululand, UThungulu, Ilembe, Umzinyathi and uMkhanyakude. UThukela and Amajuba return to a Minor drought status, while Ugu, UMgungundlovu and eThekweni remain at a Minor drought status. Nine of the 11 district municipalities have been declared drought disaster areas by the premier, in terms of portable water. The late rains have helped rye grass germination and growth is good. Kikuyu pastures are variable across various districts, in some areas pastures are normal with good bulk after the rains which extended the growing season but in the drought affected areas very poor with no bulk. Preliminary planting of wheat has begun in the Winterton / Bergville areas. Sugar cane areas visited through the month are showing signs of improvement. The veld is seeding and turning yellow-brown in most districts. The level of major dams has decreased as compared to the previous year (89% in 2014; 72% in 2015).

Limpopo

The province received near normal to below normal rainfall. General conditions of grazing were reported to be poor in communal areas while the condition is fair in commercial areas. Livestock condition is deteriorating especially at communal areas. Due to poor summer rainfall, the farm dams and rivers are dry. The average level of major dams was at 87% in 2015 as compare to 91% of 2014.

Mpumalanga

Rainfall was near normal but above normal in the south. Crops are in poor condition in the entire province more especially on dry land farming. Harvesting of crops continues. The veld is in poor condition due to heat stress. Livestock condition is fair in most parts but poor in the extreme northern areas of the Bushbuckridge municipalities particularly in communal areas as a result of poor vegetation cover. The level of major dams has decreased compared to the previous year (89% in 2015; 97% in 2014).

Northern Cape

Rainfall received was normal to above normal but below normal in the west. The veld and livestock conditions are normal in the ZF Mgcawu and John Taolo Districts and below normal to normal in Namakwa, but below normal in Francis Baard District. In Namakwa, the Hantam local

municipality has been declared a disaster area. Harvesting of table grapes is nearly complete. The level of major dams has decreased compared to the previous year (85% in 2015; 97% in 2014).

North West

Near normal rainfall was received. The grain crops are in poor condition due to low precipitation. The veld condition is still good while livestock condition is fair. The level of major dams decreased; 66% in 2015 as compared to 81% of last year during the same period.

Western Cape

The province received below normal rainfall but near normal to above normal in the east. It remains to be seen if follow-up winter rainfall will address the current drought situation that has been experienced in various districts. Veld conditions remain poor and farmers were forced to supply supplementary feed to livestock in order to maintain conditions. The level of major dams was at 46% in 2015 which is lower than the 67% of 2014 during the same period.

III. AGRICULTURAL MARKETS

Major grain commodities

According to FNB Agri-Weekly, yellow maize prices moved sideways to firmer on Rand weaknesses and yield concerns. Prices are expected to trend sideways with upside potential in the medium term as we head into the harvest period, while white maize prices showed some moderate gains on Rand weakness. White maize prices are also expected to trend sideways with upward potential in the medium term as we head into the harvest period. Wheat prices showed losses while oil seed market traded mostly sideways.

Domestic prices per Safex (R/t)

| | Futures prices as at (2015/04/21) | | | | |
|------------------|--|------------|------------|------------|------------|
| Commodity | 2015/04 | 2015/05 | 2015/07 | 2015/09 | 2015/12 |
| White maize | R2543.00/t | R2551.00/t | R2587.00/t | R2628.00/t | R2668.00/t |
| Yellow maize | R2362.00/t | R2371.00/t | R2358.00/t | R2391.00/t | R2427.00/t |
| Wheat | R3745.00/t | R3757.00/t | R3801.00/t | R3794.00/t | R3720.00/t |
| Sunflower | R4833.00/t | R4841.00/t | R4934.00/t | R4985.00/t | R5110.00/t |
| Soybeans | R4773.00/t | R4790.00/t | R4857.00/t | R4909.00/t | R4992.00/t |
| Sorghum | N/a | R2600.00/t | R2545.00/t | R2560.00/t | N/a |

SAGIS: 2015/04/23

Livestock domestic markets

FNB stated that the beef market saw losses across most categories as demand decreased after Easter holidays; however losses were limited as pressure to sell cattle has decreased due to improved production conditions across the producing areas. Beef prices are expected to recover slightly in the short term as demand picks up towards month end. Lamb prices continued to strengthen supported by tight supplies across the markets. Mutton on the other hand declined as a result of weaker demand, the lamb and mutton prices are expected to trend sideways with limited upward potential in the medium term due to moderation in demand. Pork and baconer prices continued to weaken, due to subdued demand. Prices are expected to trend sideways with upward potential in the medium term due to moderation in supplies and good demand. Poultry prices maintained a softer trend as demand slowed post the Easter holidays. It is expected that prices will rebound towards month end on good demand.

| Producer prices for selected livestock commodities | Beef | Mutton | Pork | Poultry |
|--|-------|--------|-------|---------|
| Open market: Class A / Porker / Fresh whole birds (R/kg) | 34.84 | 53.48 | 25.40 | 22.83 |
| Open market: Class C / Baconer / Frozen whole birds (R/kg) | 26.14 | 36.61 | 23.40 | 22.55 |
| Contract: A2/A3* / Baconer/ IQF (*includes fifth quarter) (R/kg) | 34.28 | 52.86 | 23.55 | 19.62 |
| Import parity price (R/kg) | 30.88 | 31.39 | 19.67 | 17.27 |
| Weaner Calves / Feeder Lambs (R/kg) | 19.54 | 23.17 | | |

FNB AgriCommodities: 2015/04/17

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 latest food security outlook by FEWS NET states that with dry conditions experienced in the southern and western parts of the region between January and March, the 2015 production outlook for the region will likely be lower than last year's levels and the five-year average. In some of the areas that experienced heavy rainfall and flooding, including Madagascar, Malawi, and Mozambique, a combination of the late start of the season and the adverse effects of flooding increased chances of reduced production levels. Nevertheless, regional cereal supply is expected to be average between April and September as supplies are boosted by new harvests complimented by significant carryover stock from surplus countries including South Africa, Zambia and Tanzania.

The start of the main harvest in April-June is expected to reduce household reliance on market purchases for staple foods, and this will reduce the pressure on local market prices. However, delayed harvests expected in most parts of the region due to late onset of the rains, likely keep prices higher for a longer period than is normal.

Zambia, is projecting a near average 2015 harvest and with a large carryover stock from last year that is estimated to be over 1 million MT. Zambia will have adequate cereal supplies during the 2015/16 marketing year. With prices in Tanzania being below the five-year average, increased demand is expected from countries including south-eastern Kenya, Rwanda, and Burundi between April and June. These exports will likely increase due to the rising need to dispose of stocks from the previous year in anticipation of the harvest in May, especially in the main producing southern regions of Tanzania.

Summary of the reports

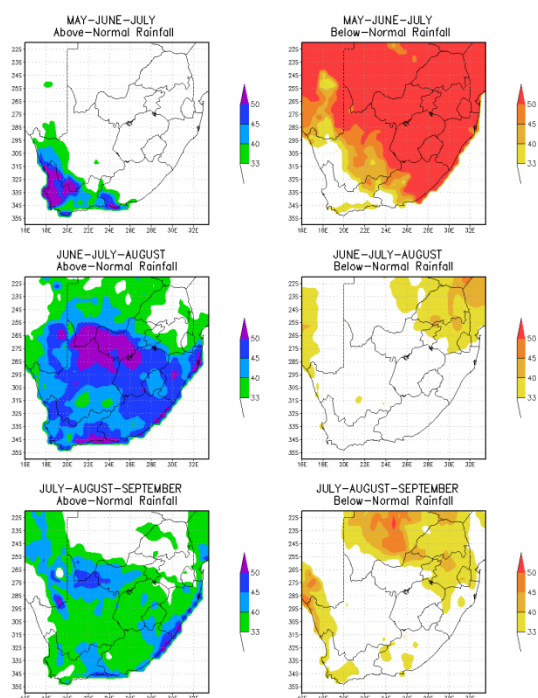
In March, the central parts of the country received above normal rainfall while the remaining areas received near normal to below normal rainfall. Crops are generally in poor condition due to heat stress experienced earlier in the year. The veld is in reasonable to poor condition while livestock

is in reasonable to good condition. Frost damaged vegetables in the Free State while livestock mortalities were reported in the Eastern Cape due to lightning. Drought remains in many areas of KwaZulu-Natal. The level of dams has decreased in all provinces as compared to the previous year during the same period. Over SADC, the 2015 production outlook for the region will likely be lower than last year's levels and the five-year average following the dry conditions experienced in the southern and western parts of the region between January and March.

V. MONTHLY CLIMATE OUTLOOK

Seasonal Climate Watch: May to September 2015

Figure 1- Rainfall



The forecasting system indicates above-normal rainfall conditions for the extreme south western parts of South Africa with below-normal conditions for the rest of the country. There is also an indication of possible extreme rainfall totals for the extreme south west for early winter. Moving into mid and late winter, generally above-normal rainfall totals is expected.

Figure 2 - Minimum temperatures

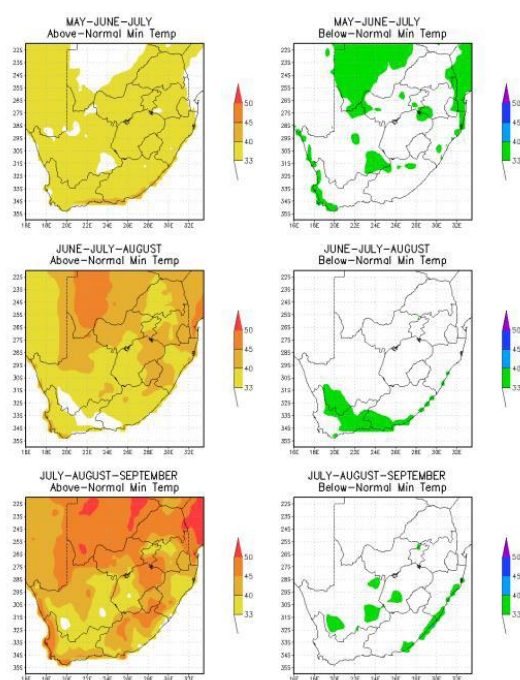
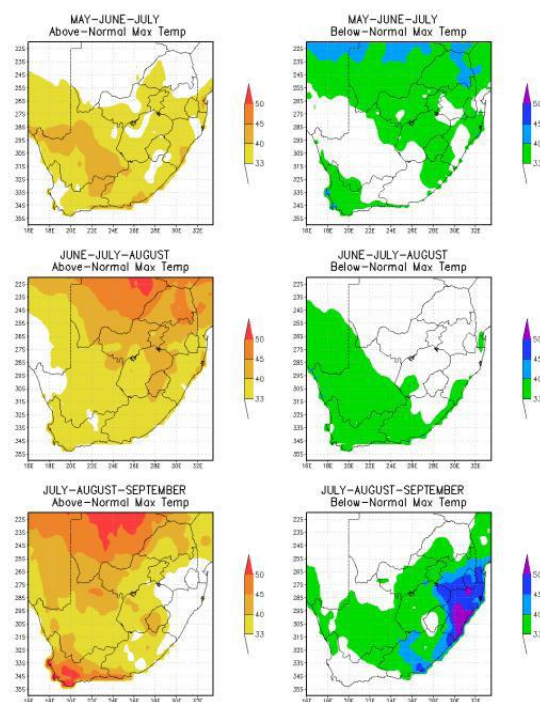


Figure 3 - Maximum temperatures



The forecasting system indicates general uncertainty towards temperatures throughout the coming winter season. There is however a general indication of above-normal minimum and maximum temperatures with an exception of below-normal maximum temperatures for the eastern coastal areas for late winter.

How to interpret the forecast maps

- There are three sets of forecast maps: the rainfall, minimum and maximum temperatures.
- Each set consists of maps showing the probabilities for above-normal (left panels) and below normal (right panels) conditions to occur.
- For each forecast map a probability percentage is given on a scale of 0-50% and above (the colour bars on the right hand side of each map) for the rainfall or temperatures for the season, i.e. MAY-JUNE-JULY 2015.
- The forecast probabilities indicate the **direction** of the forecast as well as the amount of **confidence** in the forecast.

For further clarification using MAY-JUNE-JULY 2015 rainfall (**Figure 1**) as an example: Western Cape Province, for the above normal rainfall category, is shaded mainly in dark blue (**45-50%**) and purple (**50% and greater**). In the below normal rainfall category it is shaded in white (**<33%**).

Comparing the two:-

- above normal: dark blue (45-50%), purple (50% and greater),
- below normal: white (<33%)

The above normal rainfall for May to July 2015 has higher values and is therefore favoured. This means that rainfall is anticipated to be above normal over the Western Cape during the period April to June 2015.

State of Climate Drivers

Observations show that ENSO is currently at a weak El-Niño condition. Most of the forecast model's predictions indicate the strengthening of El Niño condition through the austral winter to spring seasons. The impact of ENSO on the climate of our region is more noticeable during the austral summer season.

In summation, during early winter, rainfall is anticipated to be above normal over the winter rainfall areas and surrounding areas. Below normal rainfall is expected in summer rainfall areas. Both minimum and maximum temperatures are uncertain. When conditions are uncertain, farmers are advised to plan their activities in accordance with weather conditions that usually occur in their area during that time of the year. 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 (Winter Crop)

Soil choice:

- Choose suitable soil type.
- Roughen the soil surface to minimize evaporation.
- Minimise compaction by reducing the passing of heavy machinery in the field.

Land preparation:

- Minimum or zero tillage is encouraged to minimise greenhouse gases emission.
- Use a ripper to break plough pans and increase access of roots to stored water and nutrients.
- Prioritise fallow land.

Crop choice and planting:

- Choose suitable cultivars as a precautionary measure.
- Provide flexibility and diversification.
- Stick to normal planting window if appropriate and follow the weather and climate forecast regularly.
- Consider staggered planting spreading over weeks.
- Always practice crop rotation.
- Lay out planting rows parallel to the prevailing direction of the cold air flow.
- Keep air drainage pathways open to insure good air drainage and elimination of frost pockets.

Crop management:

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

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

B. Irrigation farming

- Remove all weeds containing seeds, but keep other vegetative rests on the land because that will reduce evaporation.
- Check and repair all tools and machinery.
- Irrigate when it is cool to avoid evapotranspiration.
- 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 (very important)

For most of the country, if the correct farming practices have been followed and stocking rates have been kept in balance with carrying capacity, animals should be in relatively good condition.

- Never exceed carrying capacity of plant associations and densities – keep conservative stocking rates even during favourable climate conditions.
- Provide lots of drinking points.
- 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).
- If grazing is in danger, herd animals into pens where different animals can be segregated and fed separately.
- Follow the vaccine routine and consult with the local veterinarian.

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.
- Provide suitable licks to make coarse, dry grasses more palatable.
- During drought:
 - Accelerate rotational grazing,
 - Identify and use areas that were not grazed/grazed less intensively last year,
 - Wean calves early – lactating cows consume much more,
 - Close water points in over-used areas,
 - Provide lots of drinking points.

F. Veld fires

The provinces and farmers are advised to maintain firebreaks in winter rainfall areas and to construct the firebreaks in summer rainfall 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 and 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 veldfire 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 veldfire

- 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.

G. Cold spells (snowfall & frost) (Very important)

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

Livestock:

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

- Livestock suffering from frostbite don't exhibit pain. It may be up to two weeks before the injury becomes evident as freeze-damaged tissue starts to slough away. At that point, the injury should be treated as an open wound and a veterinarian should be consulted.

Crops:

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

Although rainfall in March improved soil moisture in some areas, the veld is drying out at this time of the year. Poor crop harvests are expected in some areas due to the heat stress earlier in the season. The seasonal forecast anticipates wet conditions for winter rainfall areas during early winter but dry conditions in summer rainfall areas. With the seasonal forecast in mind, and current conditions in provinces, farmers are advised to conserve water and other resources in accordance with the Conservation of Agricultural Resources Act (Act No. 43 of 1983). Water restrictions should also be adhered to when issued. Winter crop farmers are advised to choose suitable cultivars.

Livestock should be kept in line with carrying capacity of the veld and should be provided with additional feed including licks to give sufficient nutrition. Construction of firebreaks should commence in summer rainfall areas, and in winter rainfall areas the firebreaks should be maintained. Cold front activity is likely to increase as winter approaches; hence isolated incidents of flooding are possible in winter rainfall areas and very cold condition in most areas of the country. Therefore measures for these should be maintained i.e. proper drainage systems, relocation of livestock and movable assets to a safe place.


The users are urged to continuously monitor, evaluate, report and attend to current Disaster Risk 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 advisory update next month. 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 (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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| <p>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</p>  | <p>SAWS: Private Bag X097 Pretoria 0001 Tel: +27 (0) 12 367 6000 Fax: +27 (0) 12 367 6200 http://www.weathersa.co.za</p>  | <p>ARC: Institute for Soil, Climate and Water Private Bag X79 Pretoria 0001 Tel: 012 310 2500 Fax: 012 323 1157 Email: iscwinfo@arc.agric.za, http://www.arc.agric.za</p>  |
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