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Nigerian Meteorological Agency

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LIVESTOCK WEATHER BULLETIN

A PUBLICATION OF THE NIGERIAN METEOROLOGICAL AGENCY

MAIDEN EDITION

ISSN: 2315 - 9790

Livestock Weather Bulletin

January - March 2025

Maiden Edition

A publication of Nigerian Meteorological Agency

Our Mandate

Our core mandate is to observe, collate and analyze meteorological data to provide timely and accurate reporting of weather and climate information for socio-economic development and safety of lives and properties.

Our Vision

To be a World Class provider of Weather and Climate services for safety and sustainable national socio-economic development.

Our Mission

To observe Nigerian Weather and Climate and provide Meteorological, Hydrological, and Oceanographic Services in support of National needs and International Obligations

Who We Serve

Aviation, Agriculture, Building and Construction, Commerce, Health, Hydrology, Marine, Oil and Gas, Sports, Social Events, Power and Energy, Telecommunication and more...

Editorial

TABLE OF Contents

Preamble

Climate change presents a growing challenge to Nigeria's agricultural sector, particularly the livestock subsector. Variability in rainfall, rising temperatures, prolonged dry spells, and extreme weather events affect animal health, feed and water availability, and overall productivity. Recent studies show that cattle mortality rates in northern Nigeria have increased by 15% during periods of extreme heat, directly impacting local food supply. Heat stress reduces fertility, milk yield, and growth rates, while erratic rainfall alters grazing conditions and the quality of pastures. These impacts threaten food security, farmer livelihoods, and the sustainability of livestock production systems. To address these challenges, farmers are adopting drought-resistant forage crops and investing in improved water management systems to sustain livestock productivity.

To help farmers cope with these changes, the Livestock Weather Bulletin is produced each month to review the climate and highlight its likely effects on livestock. It provides a comprehensive overview of weather conditions, including rainfall, temperature, soil moisture, the Thermal Comfort Index (THI)—a measure of how comfortable the temperature and humidity levels are for livestock—and the Normalized Difference Vegetation Index (NDVI), which indicates plant health and pasture availability. The bulletin also presents forecasts of key climatic parameters such as rainfall, maximum and minimum temperature, and relative humidity, alongside their implications for livestock production across the country.

Importantly, the bulletin also serves as an early warning tool, integrating climate forecasts with livestock health indicators to anticipate risks such as heat stress, water scarcity, and pasture decline. This timely information empowers farmers to take preventive measures, protect animal health, and minimize losses.

I believe the information provided in this bulletin has the potential to improve livestock health, enhance resilience to climate variability, and support farmers in maximizing profits by enabling them to adjust feeding schedules, optimize herd sizes, and plan for resource allocation based on forecasted conditions.

Professor Charles Anosike
Director General/CEO NiMet &
Permanent Representative of Nigeria
with WMO

January 2025

Summary

This is the maiden edition of the Livestock Weather Bulletin produced by the Nigerian Meteorological Agency (NiMet). The Bulletin offers weather information directly relevant to livestock farming across Nigeria, including data on rainfall, temperature, and relative humidity, along with several specialised indices designed to guide farmer decision-making. For example, the Livestock Comfortability Index (LCI) assesses how weather conditions affect animal comfort, while the Soil Moisture Index (SMI) indicates the level of moisture available in the soil for pasture growth. The Normalized Difference Vegetation Index (NDVI) measures the availability and health of vegetation, which is crucial for grazing.

By providing these parameters, the Bulletin aims to support both sedentary and nomadic livestock farmers in making informed choices to improve the health, productivity, and welfare of their animals. This relevance is immediate and ongoing, as future editions will continue to address the specific needs and challenges faced by various types of livestock farmers throughout Nigeria.

This edition analyses the weather parameters mentioned above for January 2025 and highlights the implications for livestock health, productivity, and overall well-being during the month. The summary is as follows:

- The southern states of Nigeria received 30 to 60 mm of rainfall, which supports moderate pasture growth, while the central and northern states remained dry with no rainfall during the month.
- The weekly average temperature in the northern and central states was 32.0°C, and above 35.0°C in the south.
- Abakaliki (Ebonyi State) recorded the highest monthly average temperature of 37.8°C, while Jos (Plateau State) had the lowest daytime temperature of 29.6°C.
- Analysis of the NDVI indicates moderate availability of vegetation for grazing & micro-ruminants in the southern states, sparse to moderate in the central states, and very limited pasture in the northern states of the country.
- Heat stress conditions were severe in the southern states, but mild in the central states of the country.
- The shortage of pasture in the northern part of the country may drive pastoral migration southwards, increasing the risk of farmer–herder conflicts.
- Farmers and stakeholders are advised to contact NiMet for further Information on www.nimet.gov.ng, or download the NiMet Weather App (available on Google Play and the Apple App Store), or contact the nearest NiMet office in any State or the Federal Capital Territory (FCT).

1.0 Rainfall Pattern Across Nigeria in January 2025

1.1 Rainfall Amount

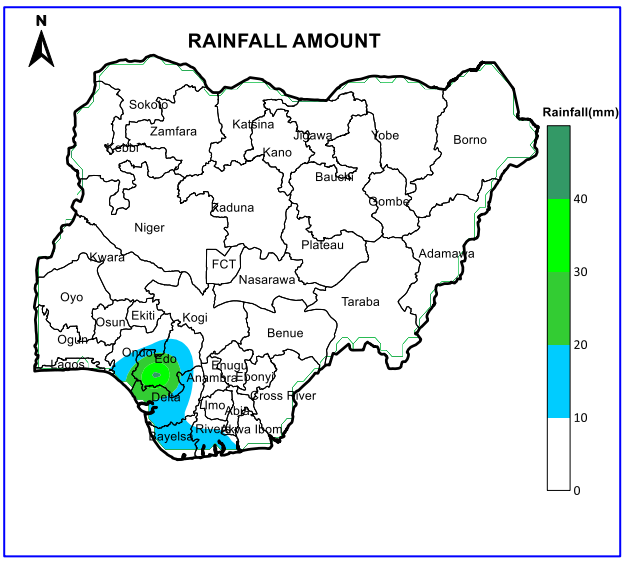


Figure 1: Rainfall Amount across Nigeria in January 2025.

Rainfall amount across Nigeria in January 2025 are illustrated in Figure 1. Most weather activity occurred during the third dekad (last ten days) of the month. Notably, Benin (Edo State) recorded significant rainfall of 45 mm, accompanied by strong winds. Other states in the South-South region—Delta, Bayelsa, and Rivers—also recorded light rainfall amounts, generally below 10 mm. These rainfall activities were confined to the South-South, while the rest of the country remained largely dry. Most parts of the northern and central states continued to experience the dominance of dry northeasterly winds, characteristic of the harmattan season. This dry condition is typical for this time of year and signals the seasonal transition ahead of the anticipated onset of rains in the coastal areas in February.

Alert

The rainfall observed in January is pre-onset activity and should not be interpreted as the true onset of the rainy season in the region.

2.0 Soil Moisture Conditions in January 2025

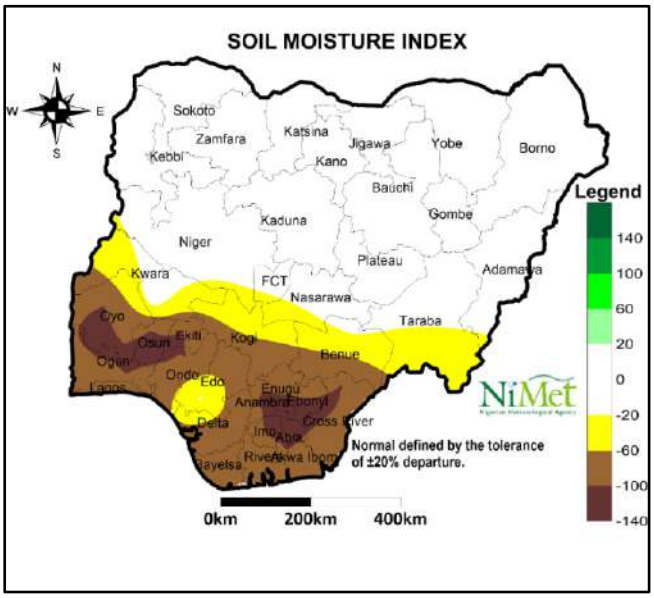


Figure 2: Soil Moisture Index (SMI) across Nigeria in January 2025.

Figure 2 presents the soil moisture conditions across Nigeria in January 2025. Below-normal soil moisture levels were recorded across most states during the month, reflecting the prevailing dry season conditions and limited rainfall activity. These dry conditions are likely to further deplete available pasture and surface water sources, particularly in the northern states of the country where dry northeasterly winds persist. As a result, increased migration of pastoralists toward the southern parts of the country in search of better grazing resources and water is anticipated during this period. This trend may heighten competition for natural resources, such as water and vegetation, and underscores the need for early interventions in pasture management and conflict mitigation strategies.

3.0 Temperature Distribution Across Nigeria in January 2025

3.1 Maximum (Daytime) Temperature Distribution

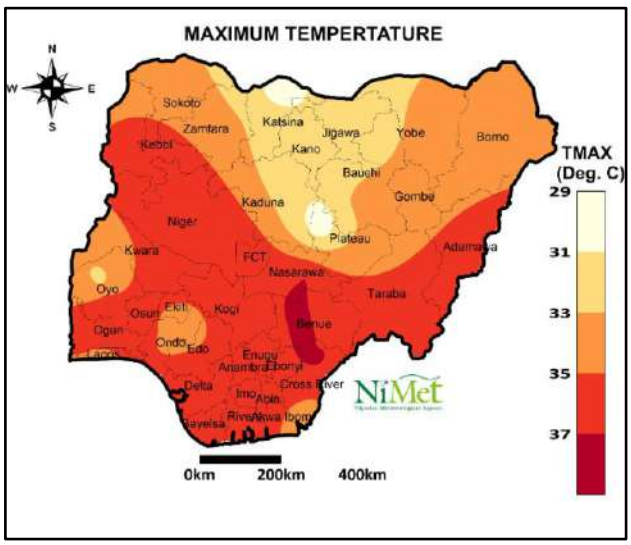


Figure 3: Maximum Temperature Distribution Across Nigeria in January 2025.

In early January, daytime temperatures across the northern states were lower when compared to the south. The lower temperature in the northern parts of the country was attributed to the prevailing harmattan winds. Even though daytime temperatures in the northern states of the country remained lowest during the month, there was a slight increase in temperature during the last week of January.

Conversely, the southern states recorded the highest daytime temperatures in the month.

While the weekly average in the north and central states was 32.0°C, it was above 35.0°C in the south.

Abakaliki (Ebonyi State) recorded the highest monthly average temperature of 37.8°C, while Jos (Plateau State) had the lowest daytime temperature of 29.6°C.

High atmospheric temperatures reduce reproductive efficiency in farm animals, lower fertility, reduce embryonic growth, and increase stillbirths. They also diminish milk, meat, and egg production, while inducing metabolic stress, digestive issues, and nutritional imbalances.

3.2 Minimum Temperature Distribution

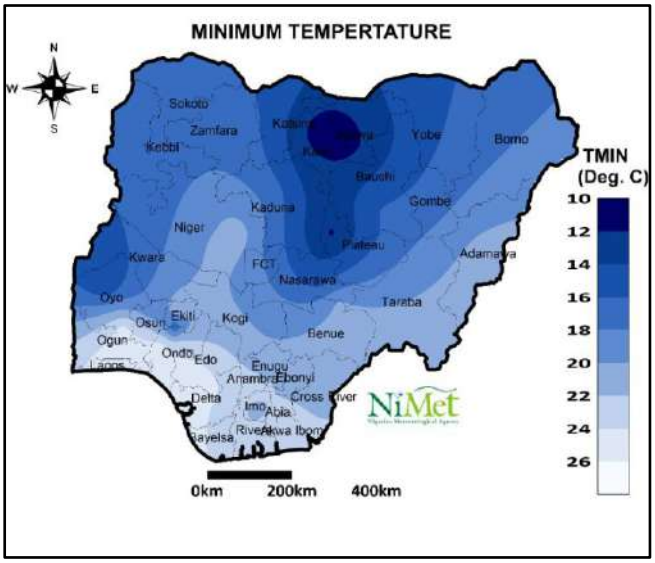


Figure 4: Minimum Temperature Across Nigeria in January 2025.

Minimum (nighttime) temperatures recorded across Nigeria in January 2025 are shown in Figure 4. The coldest conditions were observed in the northern states, where a sharp cold wave occurred between the 16th and 20th of the month. During this period, average nighttime temperatures in the northernmost parts of Nigeria dropped to approximately 12.0°C, reflecting typical harmattan season patterns.

3.3 Livestock Comfortability Index (LCI) for January 2025.

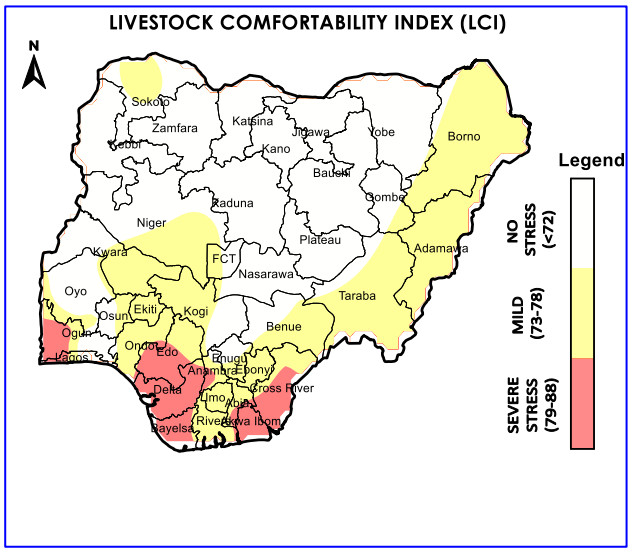


Figure 5: Livestock Comfortability Index for January 2025.

Figure 5 shows the Livestock Comfortability Index (LCI) across Nigeria in January 2025. The LCI serves as a relative indicator of livestock comfort under extreme temperature conditions and is useful for assessing potential impacts on animal performance. During the month, normal to mildly stressful conditions were observed across the northern and central states of Nigeria. In contrast, mild to severe heat stress was recorded in most southern states, particularly in Lagos, Delta, Ogun, Bayelsa, Akwa Ibom, and Cross River, where livestock were exposed to more severe thermal discomfort. Under such conditions, feed conversion efficiency decreases. This could lead to reduced growth rates and other adverse effects on animal physiology and productivity.

4.0 Normalized Difference Vegetation Index (NDVI)

The NDVI over an area indicates the amount and condition of vegetation over an area. It is therefore used for monitoring the availability of pasture.

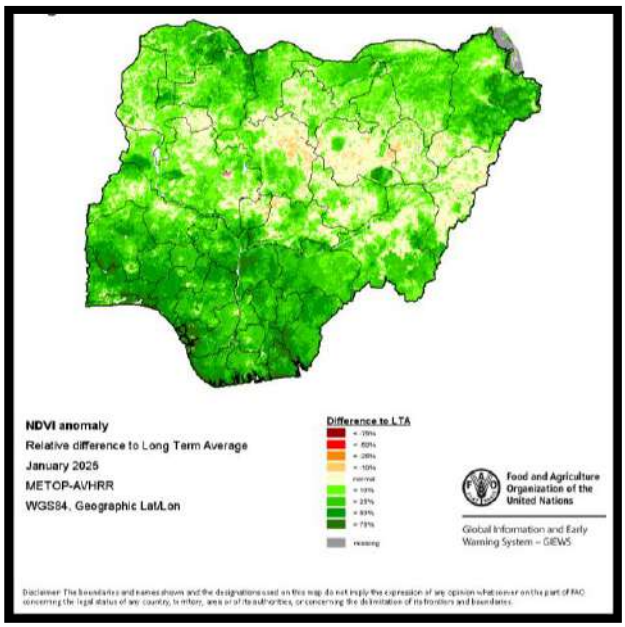


Figure 6: NDVI across Nigeria in January 2025

The NDVI across Nigeria in January 2025 is shown in Figure 6. Most parts of Nigeria experience improved vegetation conditions, particularly in the southern and central states, where the NDVI anomalies ranged from +10% to over +70% above the long-term average. This suggests healthy vegetation growth and good pasture availability. In contrast, parts of the northeast and some north-central areas recorded below-average anomalies (-5% to -20%), indicating vegetation stress that may affect pasture and crop performance. There is a localized risk of vegetation deficit in the northeast that warrants close monitoring for food security and livestock feed availability

5.0 Weather/Agricultural Outlook for February 2025

5.1 Weather Forecast for February 2025

In February 2025, the Inter Tropical Discontinuity (ITD) is expected to pull northward and reach an average position of 9.5^{0}N.

5.1.1 Rainfall Forecast

The rainfall forecast across Nigeria for February 2025 is shown in Figure 7. Rainfall is expected mainly along the coastal areas of Nigeria, with amounts ranging between 20 mm and 40 mm. During the period, the rainfall amount decreases significantly, with distance from the coast. Less than 10 mm of rain is expected in some southern inland cities. The central and northern states are projected to remain dry.

5.1.2 Implications of the Rainfall Forecast for Livestock:

- Coastal & Southern States: Early rainfall may slightly improve pasture and reduce heat stress temporarily, but it is not yet the true onset of the rainy season. Livestock may benefit from early greening in lowland areas.
- Northern and Central States: The persistent dryness will worsen pasture scarcity, increasing pressure on available water and feed. This will likely induce increased pastoral migration southward.

5.2 Temperature Forecast

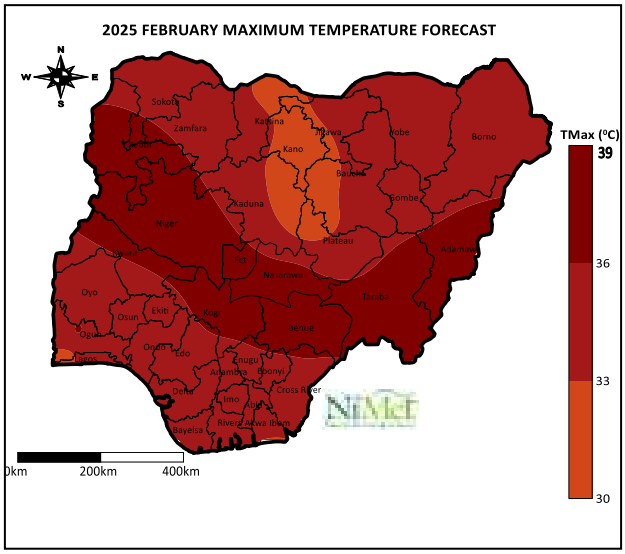


Figure 8: Maximum Temperature Forecast for February 2025

Temperatures are expected to increase in February. Daytime temperatures across Nigeria are expected to range between 30°C and 40°C. The highest values will likely occur in the inland and northern areas.

5.2.1 Implications of the Temperature Forecast for Livestock:

- Heat stress risk increases significantly. Animals may exhibit:
  - o Reduced feed intake
  - o Dehydration
  - o Increased panting and respiratory rate.
- Reproductive efficiency (conception and fertility rates) may be negatively affected in cattle and small ruminants.

5.2.2 Minimum Temperature Forecast

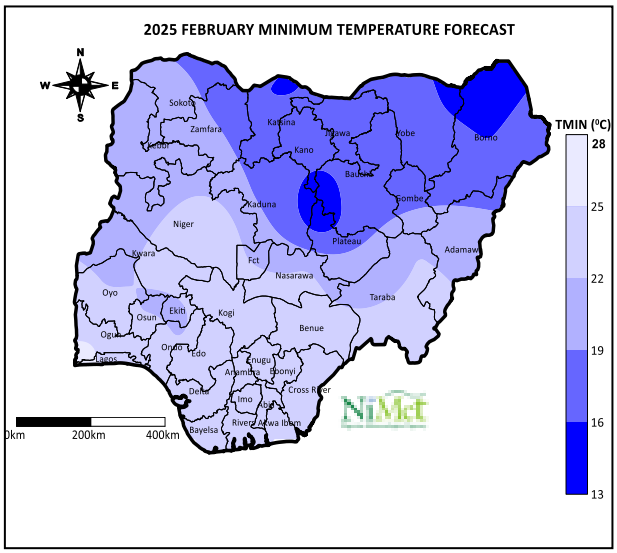


Figure 9: Minimum Temperature Forecast for February 2025

Nighttime temperatures in the northern cities are forecast to range from 13°C to 16°C, while places in the south will experience warmer nighttime temperatures between 22°C and 28°C.

5.2.3 Implications for Livestock:

(i) In the Northern States:

- Cold nighttime temperatures may affect young animals and poultry chicks, increasing the risk of hypothermia.
- Farmers should provide warm bedding or heating sources for chicks and piglets.

(ii) In the Southern States:

- Nighttime temperatures are relatively mild; no serious cold stress expected.
- However, high day-night temperature variation may affect animal metabolism and feed utilization.

5.3 Relative Humidity Forecast

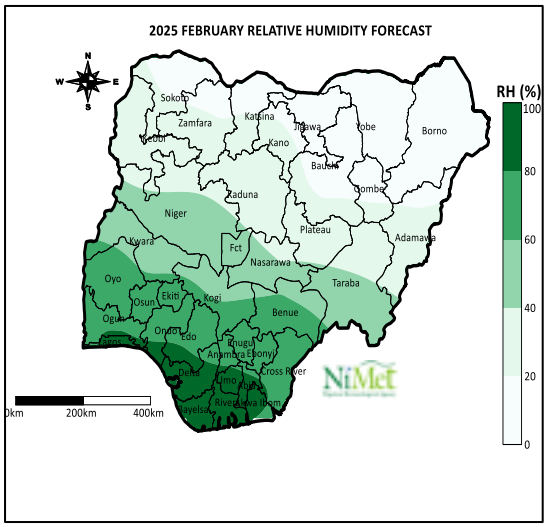


Figure 10: Relative Humidity Forecast for February 2025

In February 2025, humidity levels are expected to increase across Nigeria, with the highest values anticipated in the southern states. When combined with rising temperatures, this increase could significantly raise livestock discomfort

5.3.1 Implications for Livestock:

High humidity + heat = elevated heat stress, especially in:

- Poultry and pigs, which have low tolerance for hot and humid weather.
- Aquaculture systems, where oxygen levels drop in warm, humid conditions.
- Micro-livestock (e.g., snails) may thrive under higher humidity but still need ventilated and shaded housing to avoid overheating.

5.4 Weather Advisory for Livestock

This advisory provides species-specific guidance to livestock farmers across Nigeria for February 2025, based on current weather forecasts and Livestock Comfortability Index (LCI) analysis.

Grazing

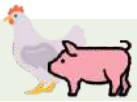
- Plan grazing schedules based on forecast rainfall patterns.
- Rest some grazing areas to allow the grass to grow
- Store fodder (e.g, Hay, Legumes, grasses)

5.4.1 General Advisory for All Livestock Farmers

- Provide constant access to clean, cool drinking water, preferably fortified with electrolytes or multivitamins.
- Ensure adequate ventilation in housing structures.
- Avoid transportation or movement of animals during peak temperature hours (usually 12–4 p.m.).
- Monitor animals for signs of heat stress: excessive panting, reduced appetite, or lethargy.

Cattle (Beef & Dairy)

- Reduce stocking density in pens or kraals to minimize heat buildup.
- Use shade structures or plant living fences (e.g., neem, moringa) around open pens.
- Provide sprinkler systems or shallow wallowing pools for cooling.
- Encourage rotational grazing in shaded areas.
- Promote pasture preservation by making hay or silage from crop residues and excess grasses before the peak dry season.
- Avoid breeding or artificial insemination during extreme heat periods unless cooling measures are in place.



Poultry & Pigs

- Feeding: Restrict feeding to early morning (before 9 a.m.) and late evening (after 5 p.m.).
- Provide cross-ventilation in poultry houses; avoid overcrowding.
- During cold mornings, provide heating lamps or other heat sources for chicks and piglets.
- Use deep litter systems and monitor for ammonia buildup.
- Ensure waterers are shaded and cleaned frequently to encourage intake.
- Farmers must supply cool water and shelter, especially for poultry, pigs, and lactating animals

Aquaculture (Catfish, Tilapia, etc.)

- Increase aeration (use battery-powered or solar aerators where electricity is unavailable).
- Change water regularly, especially in concrete or plastic tanks, to prevent heat buildup.
- Monitor water temperature and pH to avoid thermal shock and ensure optimal feed conversion.
- Feed during cooler times of day: early morning and late evening.

Micro-livestock (Snails, Rabbits)

- Keep animals in cool, shaded, and well-ventilated enclosures.
- Feed early in the morning and late evening to reduce heat stress.
- For snails, ensure constant humidity by lightly spraying the housing with water in the evenings.
- Plan reproduction cycles for less stressful weather periods; delay breeding if temperatures exceed stress thresholds.

Conflict Risk Advisory (Pastoral Migration)

- Monitor and engage with pastoralist communities as migration to southern states increases in search of pasture during the period.
- Support the implementation of grazing corridors, water points, and pasture banks where possible.
- Collaborate with local authorities and security agencies to mitigate farmer–herder conflict risk during seasonal migration.

February 2025

Summary

- Weather information relevant to livestock management in northern, central, and southern Nigeria in February 2025 is presented in this edition of the Livestock Weather Bulletin. This bulletin is designed for livestock farmers, extension officers, and agricultural planners seeking up-to-date weather information and practical advisories. It summarizes observed and forecast rainfall, temperature, relative humidity, as well as the Livestock Comfortability Index (LCI), Soil Moisture Index (SMI), and Normalized Difference Vegetation Index (NDVI) across the different regions of the country. The implications of these weather parameters for livestock health and productivity are also highlighted, along with region-specific advice for effective livestock management. The summary of the February 2025 Livestock Weather Bulletin is as follows:

·During the month, mostly dry conditions were experienced nationwide with light pre-onset rains confined to the coastal zone and the southern states.

·Temperatures were generally hotter in the south (peaking at 37.8°C), while low nighttime temperatures (as low as 10.0°C in some cases) were observed in some places in the extreme north of Nigeria.

·There was pasture scarcity in the northern and central states, prompting increased southward migrations of herders.

- ·Heat stress was experienced across the country, with feed/water shortages in the northern states. An increase in the rate of herder migration may heighten farmer–herder tensions

1.0 Rainfall Pattern Across Nigeria in February 2025

1.1 Rainfall Amount

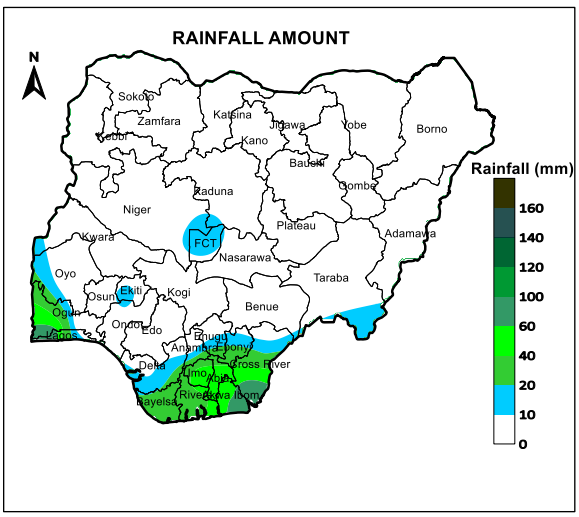


Figure 1: Rainfall Amount across Nigeria in February 2025.

Rainfall amounts observed across Nigeria in February 2025 are illustrated in Figure 1. Rainfall was recorded mainly during the last ten days of the month in the southern states, while most of the central and northern parts of the country remained predominantly dry during the period. These areas continued to be under the influence of the dry northeasterly winds associated with the harmattan season. Such dry conditions are typical during this period of year and mark the seasonal transition preceding the anticipated onset of rains along the coastal areas in February. Recorded rainfall amounts ranged between 22.0 mm and 100.0 mm

Alert

The rainfall observed in February is pre-onset activity and should not be interpreted as the true onset of the rainy season in the region.

2.0 Soil Moisture Conditions in February 2025

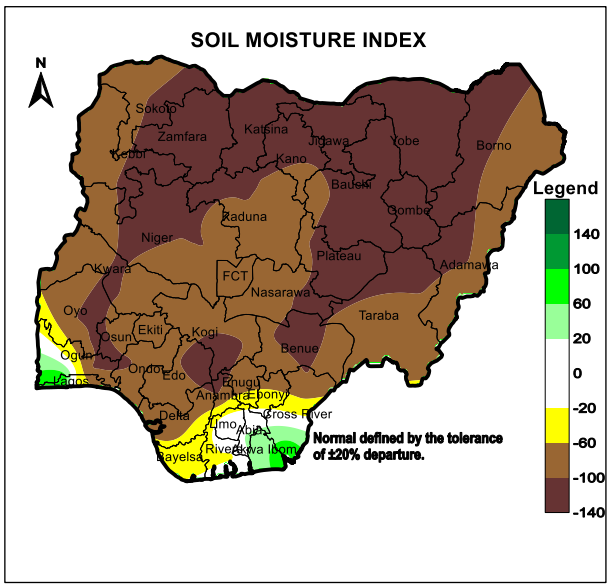


Figure 2: Soil Moisture Index (SMI) across Nigeria in February 2025.

Figure 2 presents the soil moisture conditions across Nigeria for February 2025. Below-normal soil moisture levels were recorded across most states during the month, reflecting the prevailing dry season conditions and limited rainfall activity. These dry conditions are likely to further deplete available pasture and surface water sources, particularly in the northern states of the country where dry northeasterly winds persist. As a result, increased migration of pastoralists toward the southern parts of the country in search of better grazing resources and water is anticipated during this period. This trend may heighten competition for natural resources (particularly surface water and green vegetation), and underscores the need for early interventions in pasture management and conflict mitigation strategies by relevant authorities and stakeholders.

3.0 Temperature Distribution Across Nigeria in February 2025

3.1 Maximum (Daytime) Temperature Distribution

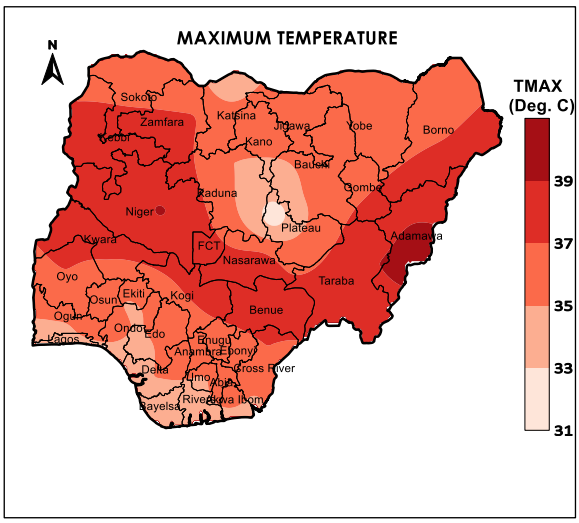


Figure 3: Maximum Temperature Distribution Across Nigeria in February 2025.

The distribution of daytime temperature across Nigeria in February 2025 is presented in Figure 3. The highest daytime temperatures were recorded in Kebbi, Sokoto, Zamfara, Katsina, Borno, and Taraba States. Some parts of the Central states also experienced elevated temperatures, ranging from 37.8°C to 39.0°C. In contrast, the southern states, while still warm, showed slightly lower temperatures compared to other regions of the country.

The weekly average temperature in the northern and central states was about 38.0°C. Specifically, Niger, Plateau, Nasarawa, and Benue recorded between 35°C and 38°C, while daytime temperatures in the southern states averaged around 35.0°C during the period.

High temperatures negatively impact livestock production by reducing fertility, milk, meat, and egg yields (in the case of poultry). They also suppress feed intake, increase metabolic stress, and the risk of still births and malnutrition.

3.2 Minimum Temperature Distribution

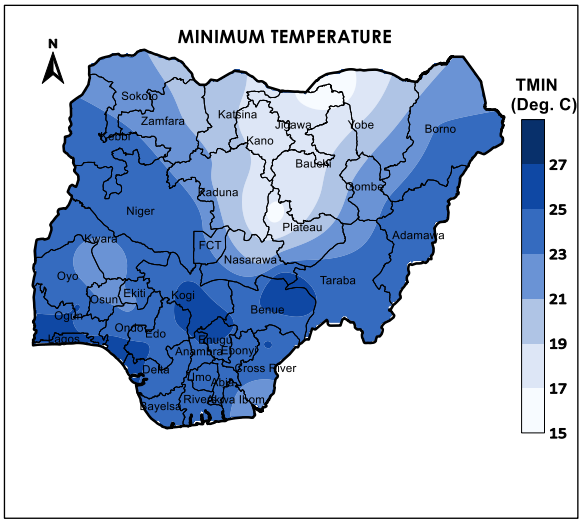


Figure 4: Minimum Temperature Across Nigeria in February 2025.

Figure 4 presents the minimum (nighttime) temperatures recorded across Nigeria in February 2025. The coldest conditions were observed in the northern states, where nighttime temperatures ranged between 10.0°C and 12.1°C, consistent with typical harmattan season patterns. In contrast, the southern states recorded higher minimum temperatures, ranging from 20°C to 26°C.

3.3Implications of Temperatures in February 2025 for Livestock

- **Cold nights in the northern states:** livestock face respiratory infections and hypothermia risk, especially young stock.
- **Moderate nights in central upland areas:** require protection for small animals but can favor fertility in cattle.
- **Warm nights in the southern states:** exacerbate heat stress, reduce productivity, and heighten disease prevalence.

4.0 Livestock Comfortability Index (LCI) for February 2025

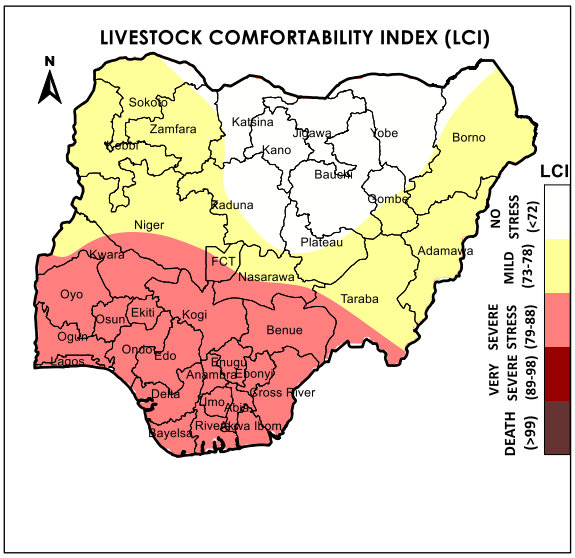


Figure 5: Livestock Comfortability Index Across Nigeria in February 2025.

Figure 5 illustrates the Livestock Comfortability Index (LCI) in various parts of Nigeria in February 2025. The LCI serves as a relative indicator of the level of livestock comfort under extreme temperature and humid conditions and is useful for assessing potential impacts of atmospheric temperature and humidity on animal performance.

During the month, mild to severe heat stress conditions for livestock were observed across Nigeria. The central and southern states generally experienced high temperatures combined with very high humidity, especially in the coastal and southern states, resulting in severe heat stress conditions for livestock in those parts of the country.

In contrast, most parts of the northern states recorded normal to mild heat stress levels. In February 2025, the northern states of the country experienced milder heat stress due to dry air, which enhances evaporative cooling in livestock.

5.0 Normalized Difference Vegetation Index (NDVI)

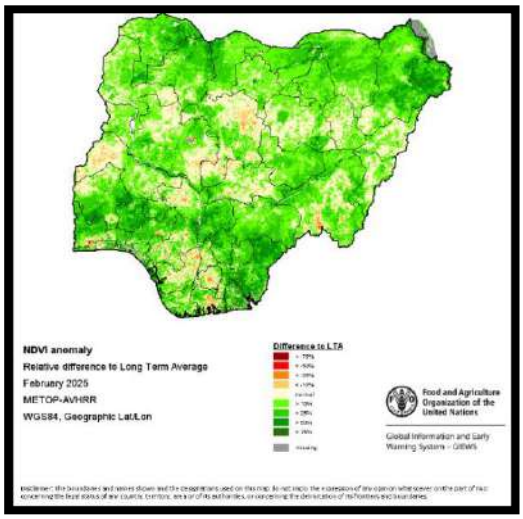


Figure 6: NDVI Across Nigeria in February 2025

The NDVI anomaly for February 2025, presented in Figure 6, shows above-average vegetation in the southern states, providing abundant pasture and aquaculture feed resources during the period. The vegetation in the central states is a mixture of moderate greenness in some places and vegetation deficits in other places due to dry-season stress and bush burning, leading to uneven pasture availability. In the northern states, vegetation is largely sparse to near-normal, indicating limited forage supply and continued reliance on crop residues and supplementary feed. Overall, while the southern part of the country supports favorable grazing, the central and northern zones face pasture deficit that could intensify livestock movement and pressure on shared water and land/vegetation resources

6.0 Weather/Agricultural Outlook for March 2025 Weather Forecast March 2025

In March 2025, the Inter Tropical Discontinuity (ITD) is expected to pull northward and reach an average position of 10.5^{0}N.

6.1 Rainfall Forecast for March 2025

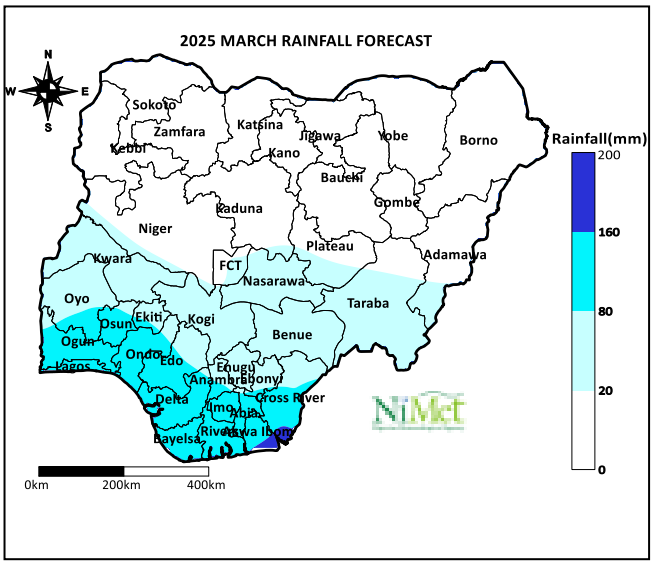


Figure 7: Rainfall Forecast for March 2025

The rainfall forecast for March 2025 for the entire Nigeria is shown in Figure 7. During the month, rainfall is expected to be largely confined mainly to the coastal areas of southern Nigeria and some parts of the central states, with forecast amounts ranging between 20 mm and 40 mm. In contrast, dry conditions are expected to persist across most of the northern states during the forecast period, consistent with the prevailing harmattan season.

6.1.1 Implications of March 2025 Rainfall forecast for Livestock:

- In the Southern States and Coastal Zone: Rainfall in the coastal and rainforest zones will enhance pasture regeneration and provide fresh forage for livestock.

Nevertheless, high humidity may also encourage the spread of pasture pests and diseases, requiring close monitoring.

- In the Northern and Central States: The persistence of the harmattan season in these parts of the country will sustain dryness, thereby limiting water and pasture availability for livestock. Farmers are advised to conserve water sources and protect animals from dust exposure.

6.2 Temperature Forecast

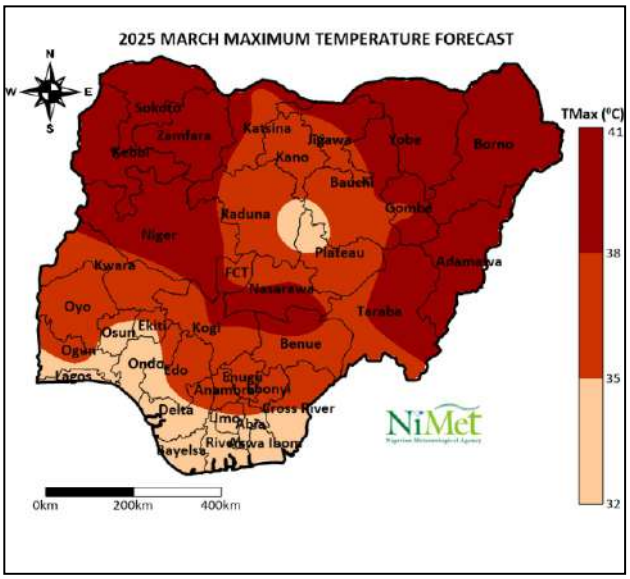


Figure 8: Maximum Temperature Forecast for March 2025

Figure 8 shows the predicted daytime temperatures for March 2025. Maximum temperatures are expected to range between 32°C and 45°C across Nigeria.

Daytime temperatures of up to 45°C are anticipated over the inland and northern states (including Sokoto, Katsina, Kano, Maiduguri, Nguru, Yola, and parts of Taraba). In the central states, temperatures are expected to range between 34°C and 40°C, with elevated areas such as Jos in Plateau State remaining slightly cooler. The southern states are expected to record relatively lower maximum temperatures, ranging from 32°C to 36°C.

Warning!

March marks the pre-rainy season period in most parts of Nigeria and is climatologically the hottest month of the year, especially in the inland and northern states. Adequate plans should therefore be made to protect livestock from the hot weather during the month.

6.2.1 Implications of March 2025 Temperature Forecast for Livestock:

- Heat stress risk increases significantly, and conception and fertility rates may be negatively affected in cattle and small ruminants

6.3 Minimum (Nighttime) Temperature Forecast for March 2025

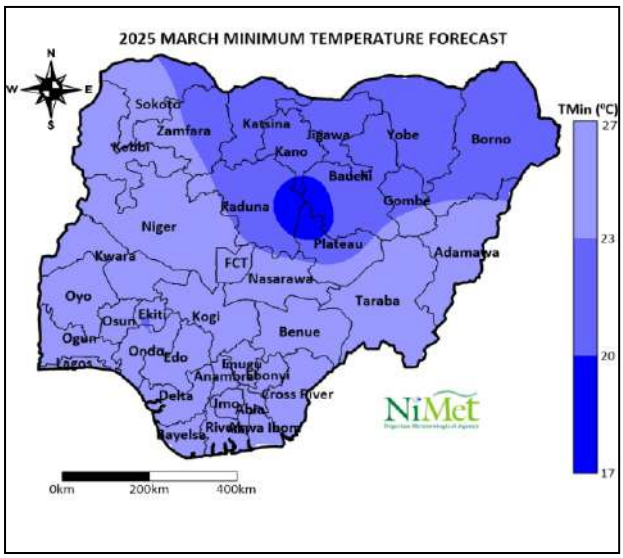


Figure 9: Minimum Temperature Forecast for March 2025

The forecast nighttime (minimum) temperature across Nigeria for March 2025 is presented in Figure 9. Nighttime temperatures in the northern states are forecast to range from 17°C to 20°C, while nighttime temperatures ranging from 22°C to 28°C are anticipated in the southern states of the country.

6.3.1 Implications for Livestock:

(i) In the Northern states:

- Cooler nights provide relief from extreme daytime heat forecasted for the period, helping livestock recover from heat stress.
- However, young animals (calves, kids, chicks) may still require protection from occasional cold stress.

(ii) In the Southern states:

- Warm and humid nights prevent adequate recovery from daytime heat, prolonging heat stress in livestock.

6.4 Relative Humidity Forecast for March 2025

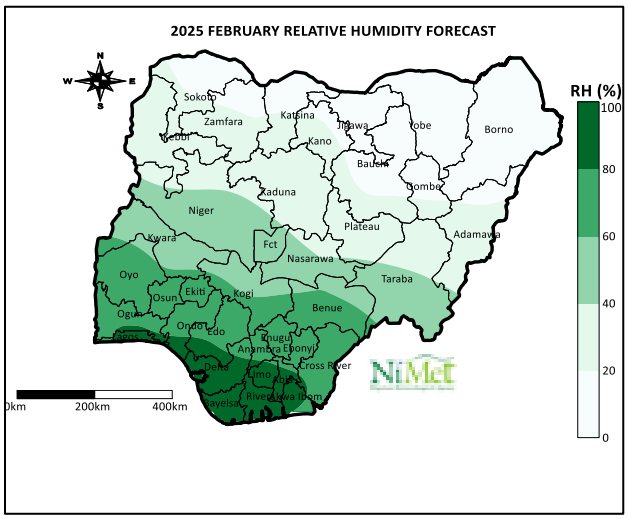


Figure 10: Relative Humidity Forecast for March 2025

In March 2025, humidity levels are expected to increase across the country, with the highest values anticipated in the southern states. When combined with rising temperatures, this increase could significantly raise livestock discomfort

6.4.1 Implications for Livestock:

High humidity + heat = elevated heat stress, especially in:

- Poultry and pigs, which have low tolerance for humid heat.
- Aquaculture systems, where oxygen levels drop in warm, humid conditions.
- Micro-livestock (e.g., snails) may thrive under higher humidity but still need ventilated and shaded housing to avoid overheating.

6.5 Weather Advisory for Livestock Management

This advisory provides species-specific guidance to livestock farmers across Nigeria for March 2025, based on current weather forecasts and Livestock Comfortability Index (LCI) analysis.

Grazing!

- Use the annual rainfall prediction provided by NiMet as a guide when planning livestock grazing for the year.
- Intentionally skip grazing in some areas to allow the grass to grow again.
- Store fodder (Hay, Legumes, grasses)

6.5.1 General Advisory for All Livestock Farmers

- Provide constant access to clean, cool drinking water, preferably fortified with electrolytes or multivitamins to help relieve

dehydration.

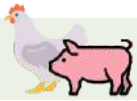
- Restrict feeding farm animals to early morning hours (i.e., before 9 a.m.) and late evening (i.e., after 5 p.m.).
- Monitor for foot rot and parasites, which often occur due to damp conditions.
- Supplementary feeding is critical for livestock in the northern and central states of the country until the pasture fully regenerates
- Intensify health monitoring and vaccination to prevent heat- and humidity-related diseases.

Cattle (Beef & Dairy)

- Reduce stocking density in pens or kraals to minimize heat buildup.
- Use shade structures or plant living fences (e.g., neem, moringa) around open pens.
- Provide sprinkler systems or shallow wallowing pools for cooling.
- Encourage rotational grazing in shaded areas.
- Promote pasture preservation by making hay or silage from crop residues and excess grasses before the peak dry season.
- Avoid breeding or artificial insemination during extreme heat periods unless cooling measures are in place.

Small Ruminants (Sheep and Goats)

- Supplement with hay, crop residues, concentrates
- Shelter at night to reduce dust exposure
- Deworm to prevent infestation due to humid conditions in the south.
- Ensure parasite control due to scattered rains in the central states.



Poultry & Pigs

- Provide cross-ventilation in poultry houses.
- Avoid overcrowding.
- Prevent coccidiosis, skin infections by maintaining hygiene.
- Protect piglets and chicks from night chill with bedding.
- Farmers must supply cool water and shelter, especially for poultry, pigs, and lactating animals

Aquaculture (Catfish, Tilapia, etc.)

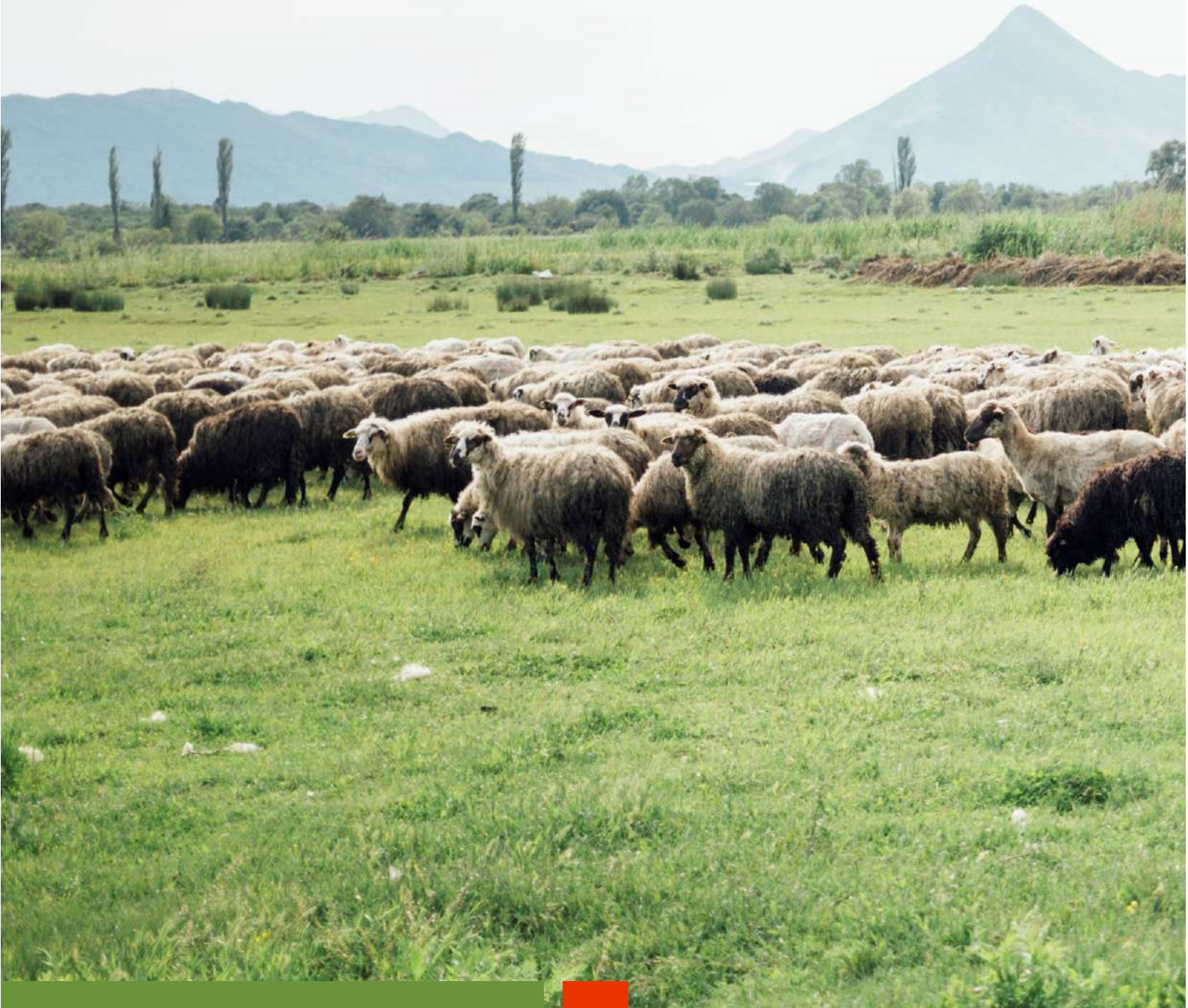
- Increase aeration (use battery-powered or solar aerators where electricity is unavailable).
- Change water regularly, especially in concrete or plastic tanks, to prevent heat buildup.
- Monitor water temperature and pH to avoid thermal shock and ensure optimal feed conversion.

Micro-livestock (Snails, Rabbits, Guinea Pigs, Grasscutter)

- Keep animals in cool, shaded, and well-ventilated enclosures, which must be dry at all times.
- Protect from dust-laden winds to avoid respiratory problems.
- For snails, ensure constant humidity by lightly spraying the housing with water in the evenings.
- Plan reproduction cycles for less stressful weather periods; delay breeding if temperatures exceed stress thresholds.

Conflict Risk Advisory (Pastoral Migration)

- Monitor and engage with pastoralist communities as migration to southern states increases in search of pasture.
- Support the implementation of grazing corridors, water points, and pasture banks where possible.
- Collaborate with local authorities and security agencies to mitigate farmer–herder conflict risk during seasonal migration.



March 2025

Summary

This edition of the Livestock Weather Bulletin provides a clear overview of weather forecasts and practical advisories to help livestock farmers across Nigeria mitigate possible adverse effects during March 2025. The summary of this edition of the Bulletin is as follows:

- In March 2025, the coastal states of Nigeria received the highest rainfall of over 50 mm, supporting the growth of lush pasture in the southern states, while the northern and central states remained dry with below-normal soil moisture, potentially driving southward pastoral movement.
- Warm daytime highs were recorded across Nigeria during the month, with Yola (Adamawa state) recording up to 41.4°C.
- Analysis of the Livestock Comfortability Index (LCI) indicates the occurrence of mild stress in north-central states, and severe stress across most of the southern states, affecting feed intake, well-being, reproduction, and productivity of livestock.
- Weather forecasts indicate heavier rainfall in the southeast (100–150 mm), moderate rains in central areas (50–70 mm), and little to no rainfall in the north in April 2025.
- Maximum (daytime) temperatures ranging from 35°C to 41°C are expected in the northern states. Milder daytime temperatures ranging from 25°C to 40°C are expected in central and southern states during the month.
- High temperatures and dry conditions threaten herds and other livestock in the northern states, and as such, animals will require supplemental feeding and water supply, while in the central states, rotational grazing is required to manage regenerating pastures. In the southern states, measures to mitigate humidity-related risks like parasites and waterlogging are required.
- Contact NiMet for further Information on www.nimet.gov.ng, or download the NiMet Weather App (available on Google Play and the Apple App Store).

1.0 Rainfall Pattern Across Nigeria in February 2025

1.1 Rainfall Amount

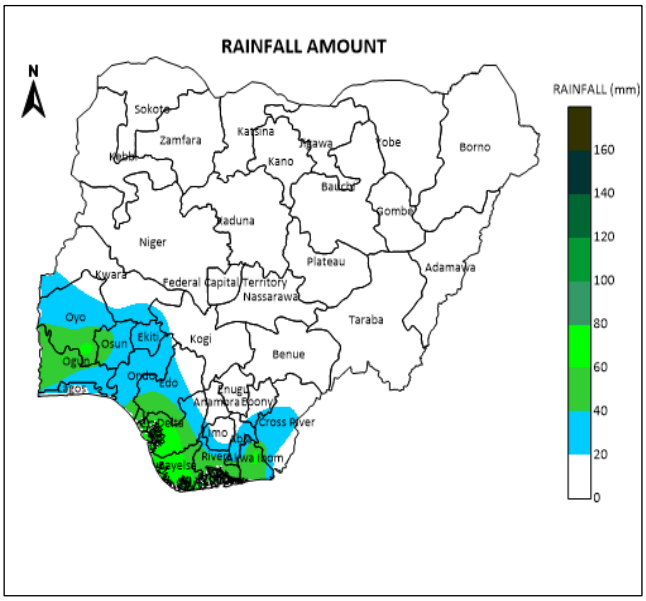


Figure 1: Rainfall Amount across Nigeria in March 2025.

Rainfall amounts across Nigeria for March 2025 are presented in Figure 1. The observed rainfall amounts during the month ranged from 3.6 mm to 77.5 mm. The highest rainfall totals were recorded in the coastal states, with Rivers, Delta, Akwa Ibom, Ogun, and Oyo States each receiving more than 50 mm. Overall, the distribution reflects the characteristic south–north rainfall gradient over the country, with heavier precipitation in the coastal south and progressively drier conditions toward the north, largely influenced by the position of the Intertropical Discontinuity (ITD) and the seasonal monsoon circulation. The rainfall in the south favours the growth of lush vegetation and thus provides favorable conditions for grazing livestock, aquaculture, and micro-ruminants. However, the accompanying humidity raises risks of parasites, waterlogging, and disease outbreaks.

2.0 Soil Moisture Conditions Across Nigeria in March 2025

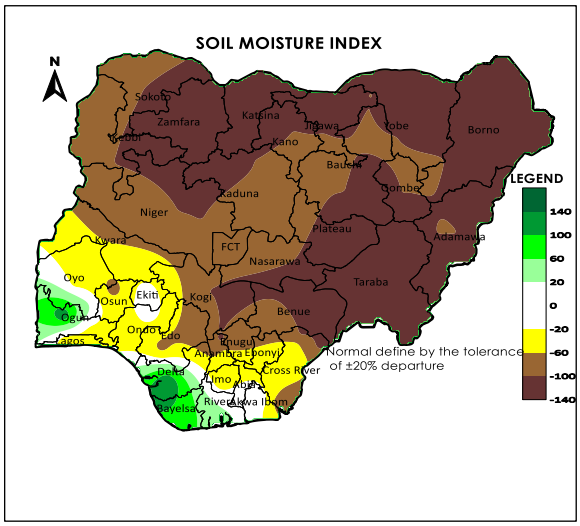


Figure 2: Soil Moisture Index (SMI) across Nigeria in March 2025.

Figure 2 shows the distribution of soil moisture conditions across Nigeria for March 2025. The map shows widespread below-normal soil moisture across most northern, central, and eastern states, reflecting the prevailing influence of dry northeasterly winds during this period. In contrast, parts of Ogun, Delta, Rivers, Bayelsa, Imo, and Akwa Ibom recorded above-normal (surplus) soil moisture. These contrasting conditions imply that available pasture and surface water resources are likely to diminish further in the north, while the southern states may experience relatively better grazing conditions. Consequently, pastoralists are likely to migrate southward in search of pasture and water, a movement that could intensify competition over natural resources and underscores the need for proactive pasture management and conflict-prevention strategies.

3.0 Temperature Distribution Across Nigeria in March 2025

3.1 Maximum (Daytime) Temperature Distribution

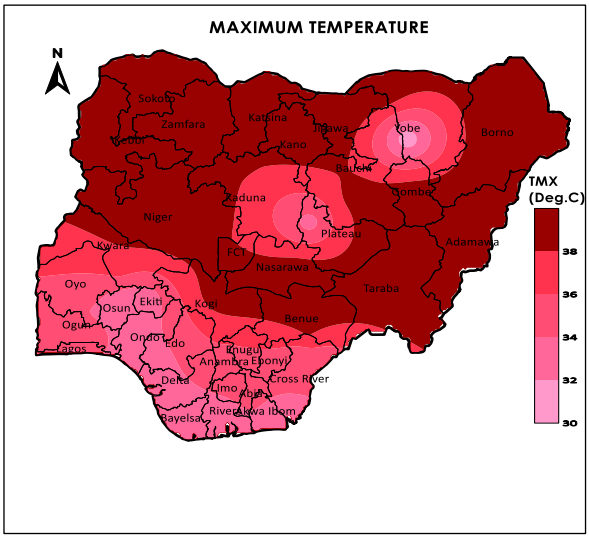


Figure 3: Maximum Temperature Distribution Across Nigeria in March 2025.

Maximum temperatures across the country in March 2025 ranged from 31.2°C to 41.4°C. The highest daytime temperature of 41.4°C was recorded in Yola (Adamawa State), while Jos (Plateau State) recorded the lowest at 31.2°C.

Climatologically, March marks the peak of the pre-rainy season hot period in many parts of Nigeria, particularly the southern states, and the increasingly high temperatures observed during this month pose significant stress risks for livestock. Prolonged exposure to such heat can impair the reproductive efficiency of both male and female farm animals, thereby reducing the production of milk, meat, and eggs.

Heat stress can diminish blood flow to the digestive tract, trigger metabolic imbalances, and reduce nutrient absorption. Among breeding stock, these conditions may further result in lower fertility rates, poor embryonic development, nutritional deficiencies, and higher incidence of stillbirths.

3.2: Minimum Temperature Distribution Across Nigeria in March 2025

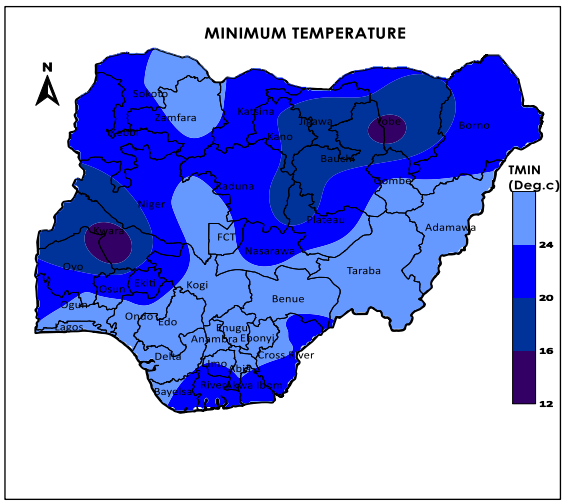


Figure 4: Minimum Temperature Across Nigeria in March 2025.

Figure 4 shows the minimum (nighttime) temperatures recorded across Nigeria in March 2025. During the period, the minimum temperatures in Nigeria ranged from 14.5°C (which was recorded in Jos (Plateau State)) to 28.0°C in Abakaliki (Ebonyi State).

3.3 Livestock Comfortability Index (LCI) Across Nigeria in March 2025.

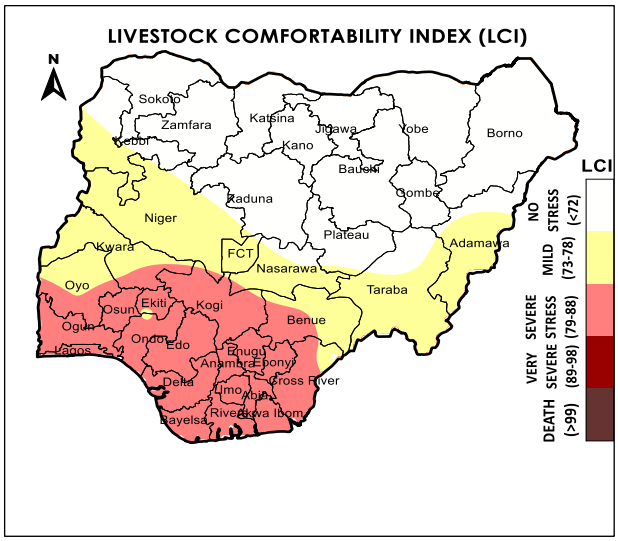


Figure 5: Livestock Comfortability Index for March 2025.

Figure 5 illustrates the Livestock Comfortability Index (LCI) across Nigeria in March 2025. The LCI serves as a relative indicator of livestock comfort under extreme temperature conditions and is useful for assessing potential impacts on animal performance.

During March 2025, mild heat stress was recorded in the north-central states of Kogi, Niger, Adamawa, Taraba, Benue, and the Federal Capital Territory (FCT). In contrast, severe heat stress conditions were experienced across several southern states, including Oyo, Ekiti, Osun, Ondo, Lagos, Edo, Delta, Enugu, Anambra, Ebonyi, Cross River, Imo, Abia, Bayelsa, Rivers, and Akwa Ibom. These stress conditions adversely affect livestock by increasing respiratory rates, reducing feed intake and conversion efficiency, lowering productivity, and ultimately leading to a general decline in animal performance.

4.0 Normalized Difference Vegetation Index (NDVI)

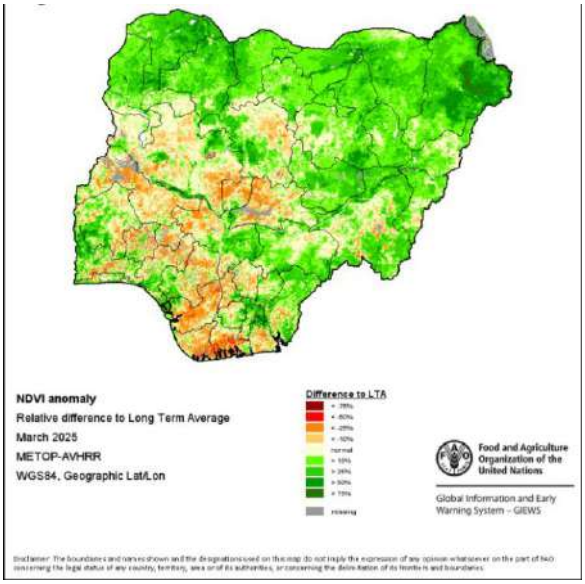


Figure 5: NDVI for March 2025

The NDVI anomaly map for Nigeria in March 2025 shows a mixed vegetation performance compared to the long-term average. Most parts of the north and the Middle Belt are greener than usual, indicating healthier vegetation conditions when compared to the long-term vegetation conditions. In contrast, large portions of the south, especially the southwest and coastal areas, show below-average vegetation cover, reflecting stressed conditions possibly linked to poor rainfall or some other environmental pressures. Overall, while northern Nigeria is experiencing better-than-normal vegetation growth, the southern regions face vegetation deficits that could impact agriculture, pasture availability, and food security.

5.0 Weather/Agricultural Outlook for April 2025

5.1 Weather Forecast April 2025

In April 2025, a northward pull of the Inter Tropical Discontinuity (ITD) is expected to reach an average position of 11.2°N. This will increase rainfall activities across the country.

5.1.1 Rainfall Forecast for April 2025

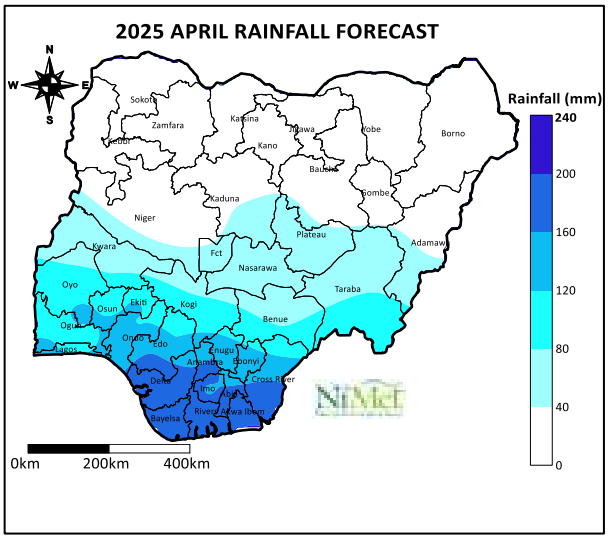


Figure 6: Rainfall Forecast for April 2025

(i) High Rainfall Amounts in the Southern States: The forecast predicts 100 mm to 150 mm of rainfall in the southeast inland and coastal areas. Heavy rains in the south risk pond flooding

(ii) Moderate Rainfall in the Central States: The central states are forecasted to receive 50mm to 70mm of rainfall (moderate rainfall).

(iii) Little to No Rainfall in the Northern States: The northern states are expected to experience 0 to 20mm of rainfall.

5.1.2 Implications of the Rainfall Forecast for Livestock:

·In the Southern States (Coastal & Inland): Early rainfall may slightly improve pasture and reduce heat stress.

·In the Central States: The expected weather conditions are generally favorable for gradual pasture regeneration and water recharge, supporting moderate grazing opportunities. Nevertheless, uneven rainfall distribution may still leave some pockets dry, requiring careful grazing management.

·In the Northern States: The dry conditions will likely limit pasture growth and surface water availability, sustaining pressure on rangelands and possibly driving southward migration of pastoralists in search of better grazing resources.

5.2 Temperature Forecast for April 2025

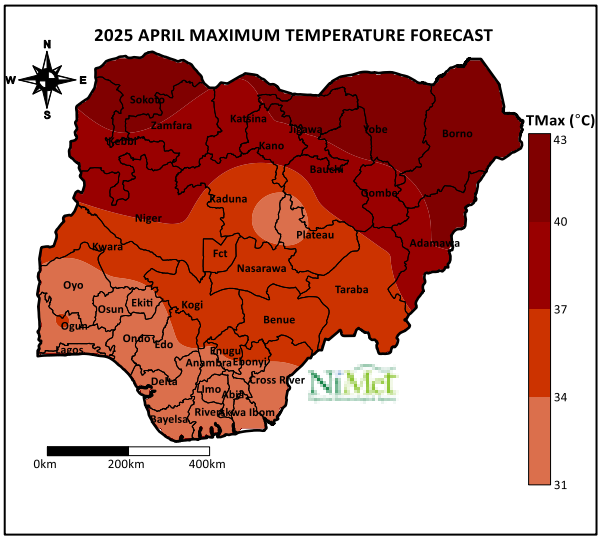


Figure 7: Maximum Temperature Forecast for April 2025

A maximum (or daytime) temperature range of 35°C to 43°C is anticipated across most parts of Borno, Yobe, Adamawa, Gombe, Taraba, Plateau, Bauchi, Jigawa, Kano, Kaduna, Katsina, Zamfara, Niger, Kebbi, Sokoto, and Kwara States. Such high temperatures are likely to induce heat stress in livestock, leading to reduced feed intake, increased water demand, and lower productivity.

A relatively lower temperature range of 31°C to 36°C is expected in parts of Ogun, Lagos, Osun, Ondo, Edo, Delta, Anambra, Imo, Abia, Rivers, Akwa Ibom, Cross River, and Bayelsa States. These conditions are more favorable for livestock comfort, reducing heat stress risks and supporting better animal wellbeing and performance.

The rest of the country is expected to experience maximum temperatures in the range of 30°C to 38°C, which, while lower, may still lead to mild heat stress on animals if prolonged, particularly in areas with limited shade or water availability.

5.2.1 Implications of the Forecast Daytime Temperatures for Livestock

(i) In the Northern States - High Temperatures (35°C to 40°C)

- Increased risk of heat stress, leading to reduced feed intake, poor weight gain, and lower milk and egg production.
- Higher water demand and risk of dehydration, especially where water access is limited.
- Possible reproductive challenges, including reduced fertility and embryonic losses.
- Increased vulnerability to diseases and mortality under extreme heat.

(ii) In the Central States - Moderate Temperatures (30°C to 38°C)

- Conditions may cause mild to moderate heat stress, particularly in animals exposed to direct sunlight for long periods.
- Livestock performance may remain stable if shade, ventilation, and adequate water are provided.
- Potential regional differences, with stress more pronounced in drier areas with less vegetation cover.

(iii) In the Southern States - Lower Temperatures (30°C to 35°C)

- The lower temperatures in the southern states are more favorable for livestock comfort, with reduced heat stress.
- Supports better feed intake, fertility, and productivity compared to hotter zones.

5.3 Minimum Temperature Forecast for April 2025

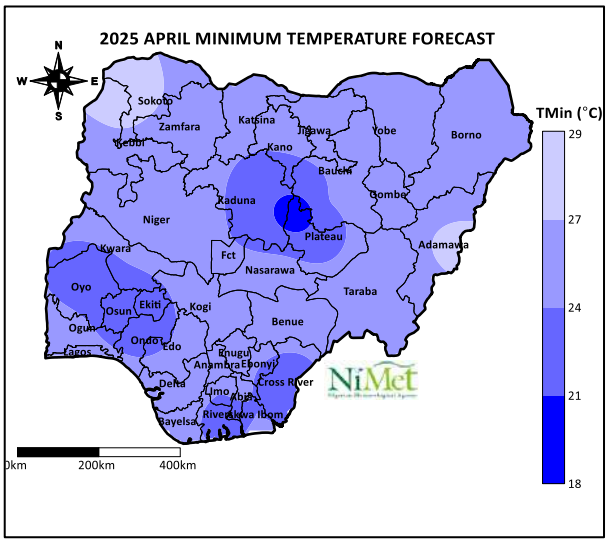


Figure 8: Minimum Temperature Forecast for April 2025

Minimum temperature range of 20 - 25 °C is expected over parts of Kano, Kaduna, Bauchi, Plateau, Taraba, Oyo, Kwara, Ogun, Osun, Ondo, Ekiti, Edo, Kogi, Anambra, Imo, Abia, Enugu, Ebonyi, Akwa Ibom, and Cross River States. A temperature range of 25 - 30 °C is expected over the rest of the country.

5.3.1 Implications of the Forecast Nighttime Temperatures for Livestock

(i) In the Northern States:

- Cold nighttime temperatures may affect young animals and poultry chicks, increasing the risk of hypothermia.

(ii) In the Southern States:

- Nights are relatively mild; no serious cold stress expected.
- However, high day-night temperature variation may affect animal metabolism and feed utilization.

5.4 Relative Humidity Forecast for April 2025

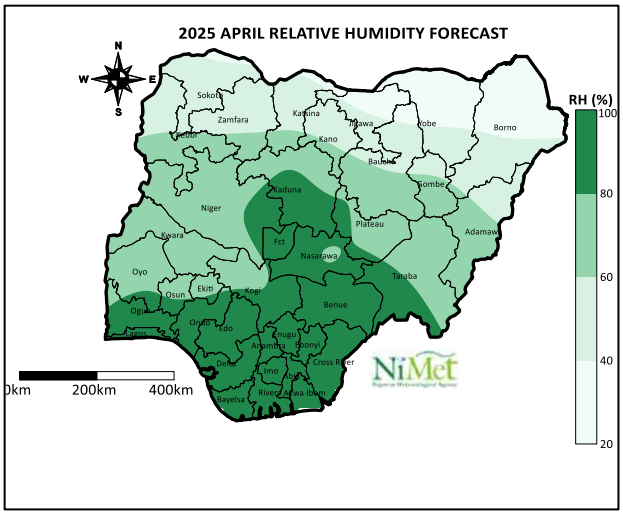


Figure 9: Relative Humidity Forecast

In April 2025, humidity levels are expected to increase across the country, with the highest values anticipated in the southern states. When combined with the rising temperatures typical of this period, this creates conditions for a significant increase in heat stress in livestock in

the southern region. With the highest forecasted humidity levels and high temperatures, livestock in these regions, particularly dairy cows, poultry, and pigs, are at the greatest risk of heat stress.

5.4.1 Implications of April 2025 Relative Humidity Forecast for Livestock

High humidity + heat = elevated heat stress, especially in:

- Poultry and pigs, which have low tolerance for humid heat.
- Aquaculture systems, where oxygen levels drop in warm, humid conditions.
- Micro-livestock (e.g., snails) may thrive under higher humidity but still need ventilated and shaded housing to avoid overheating.
- High humidity in some coastal areas may encourage parasite infestations and vector-borne diseases, requiring preventive measures.

5.5 Weather Advisory for Livestock Farmers in April 2025

This advisory provides species-specific guidance to livestock farmers across Nigeria for April 2025, based on current weather forecasts and Livestock Comfortability Index (LCI) analysis.

Grazing!

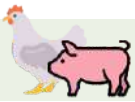
- In the northern states: expect limited forage and water shortages; provide supplementary feeding and prevent overgrazing
- In the central states: manage rotational grazing to sustain regenerating pastures
- In the southern states: forage is available, but high humidity increases risks of ticks, trypanosomiasis, and helminths; therefore, regular veterinary checks are essential

5.5.1 General Advisory for All Livestock Farmers

- Provide constant access to clean, cool drinking water for farm animals (preferably fortified with electrolytes or multivitamins).
- Ensure adequate ventilation in housing structures.
- Avoid transportation or movement of animals during the hottest hours of the day (i.e., 12 noon to 4 p.m.).
- Monitor animals for signs of heat stress: excessive panting, reduced appetite, or lethargy.
- Supplement feed with crop residues or concentrates

Cattle (Beef & Dairy)

- Reduce stocking density in pens or kraals to minimize heat buildup.
- Use shade structures or plant live fences (e.g., neem, moringa) around open pens.
- Provide sprinkler systems or shallow wallowing pools for cooling.
- Encourage rotational grazing in shaded areas.
- Promote pasture preservation by making hay or silage from crop residues and excess grasses before the peak dry season.
- Avoid breeding or artificial insemination during extreme hot periods unless cooling measures are in place.



Poultry & Pigs

- Feeding: Restrict feeding to early morning (before 9 a.m.) and late evening (after 5 p.m.).
- Provide shade and fresh water to reduce heat stress, especially for pregnant and lactating animals.
- Strengthen deworming and vaccination programs in the south, where wet conditions favour parasite buildup
- Ensure waterers are shaded and cleaned frequently to encourage water intake.
- Use improved housing/ventilation for poultry to maintain egg and meat production.

Aquaculture (Catfish, Tilapia, etc.)

- Increase aeration in ponds and monitor water quality (especially oxygen and ammonia).
- Prevent pond overflow and flooding in southern states by strengthening pond embankments
- Change water regularly, especially in concrete or plastic tanks, to prevent heat buildup.
- Monitor water temperature and pH to avoid thermal shock and ensure optimal feed conversion.
- Feed during cooler times of day: early morning and late evening.

Micro-livestock (Snails, Rabbits)

- Keep animals in cool, shaded, and well-ventilated enclosures.
- Feed the farm animals early in the morning and late evening to reduce heat stress.
- For snails, ensure constant humidity by lightly spraying the housing with water in the evenings.
- Plan reproduction cycles for less stressful weather periods; delay breeding if temperatures exceed stress thresholds.

Conflict Risk Advisory (Pastoral Migration)

- Monitor and engage with pastoralist communities as migration to southern states increases in search of pasture.
- Support the implementation of grazing corridors, water points, and pasture banks where possible.
- Collaborate with local authorities and security agencies to mitigate farmer–herder conflict risk during seasonal migration.

Need More Info?

For up-to-date weather information and livestock advisories:

- Visit: www.nimet.gov.ng
- Download: NiMet Weather App on Android or iOS
- Contact: NiMet offices in your state or the FCT
- Maintaining contact with veterinarians

Remember

!A forecast today saves your herds tomorrow. Be climate-smart.

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