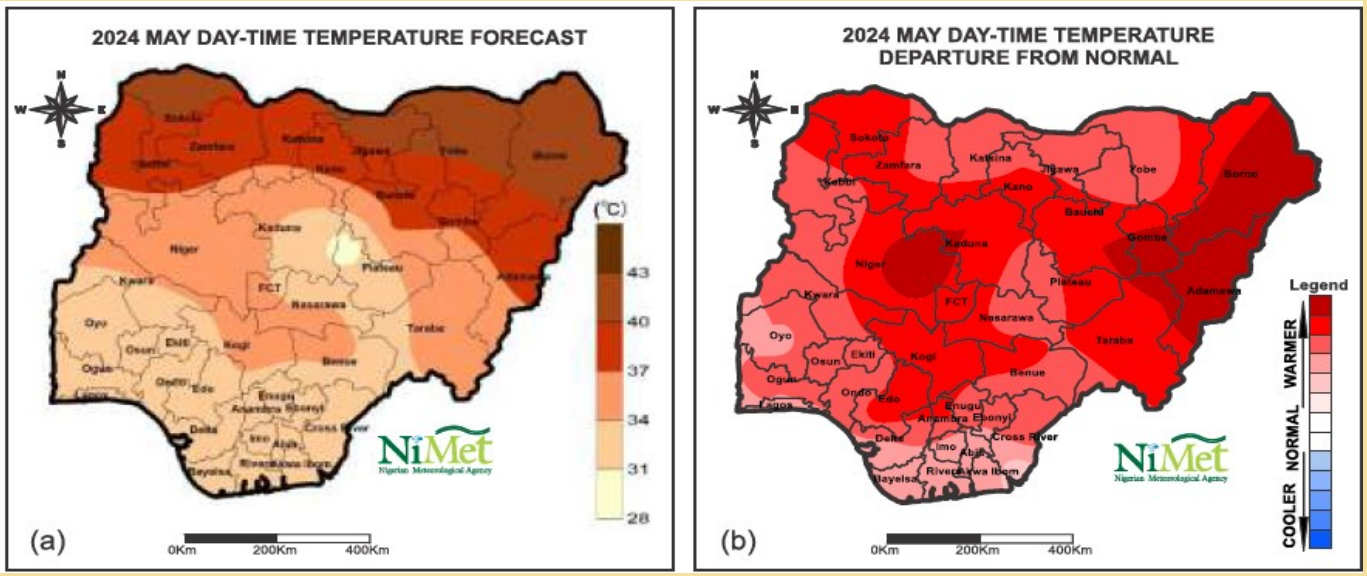
NIGERIAN LIVESTOCK EARLY WARNING SYSTEM

Climate Factsheet - No. 003

1st May 2024

Predicted May daytime (maximum) temperature and its implication on livestock production



Observable daytime and nighttime temperature

May is the final month in 2024 of exceptionally high daytime and nighttime temperatures. A maximum of 40°C to 43°C is anticipated during the day in several regions of Borno, Jigawa, Kebbi, Sokoto, and Yobe states. High temperatures of 37°C to 40°C are predicted for the day over Adamawa, Katsina, Kano, Bauchi, Gombe, and Zamfara. Daytime temperatures between 34°C and 37°C are predicted in some areas of Kaduna, Niger, Plateau, Kogi, Nasarawa, Benue, Taraba states, and the Federal Capital Territory.

Temperatures in the Southern States are predicted to be between 31°C and 34°C. The lowest daytime temperatures of between 28°C and 31°C are predicted over Plateau State. In May 2024, warmer-than-average temperatures are expected across the nation.

The predicted nighttime temperatures in the month for various locations across the country are expected to range between 17°C and 27°C. The lowest temperatures from 17°C to 20°C are expected over parts of Plateau, Bauchi and Kaduna states. Nighttime temperatures ranging from 23°C to 27°C are expected over the rest of the country.

It is of note that in the southern region of the nation, the air will get wetter as the temperature reduces, thereby increasing the relative humidity.

Implication for farm animal production

Farm animals prefer a cool environment (up to 25°C). Most of our farm animals live outside under all weather conditions, including hot temperatures. Rising temperatures make overheating a much bigger issue for the animals. Heat stress can cause animals to become less healthy and produce fewer and lower-quality products (eggs, meat, and milk).

High relative humidity can make the cooler temperatures in the southern part of the country feel even hotter.

What farmers need to do

Providing well-ventilated shelter is one of the best strategies to stop farm animals from experiencing heat stress. Additional strategies include:

- Providing enough of cool drinking water.
- Refrain from moving the animals during the hottest part of the day, which is from 10:00 am to 4:00 pm.
- Feed poultry species (chickens, turkeys, etc.) and swine in the colder hours of the day, such as early morning and late evening.
- Large-bodied animals (cattle, sheep, goats, pigs, horses, etc.) can be kept from overheating during the hot season by being misted with water or allowed to wallow in shallow bodies of water.

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Mitigating daytime and nighttime high temperatures in fish farms

The mitigating strategies for high day and night temperatures in fish farms are multifaceted, this is because the specific strategies to employ will depend on the severity of the temperature fluctuations, the fish species, and the available resources. It is vital to monitor water temperature regularly and take action when temperatures reach critical levels for the fish.

The following are some strategies that can be employed to mitigate high-temperature fluctuations in fish farms:

Water quality management:

- Regular exchange of a portion of the pond water with cooler, deeper water from another source. At least 10-20% daily water exchange during peak temperatures should be ensured.
- Aeration of water using installed aerators or air diffusers to increase oxygen levels and promote water circulation; this will help to prevent thermal stratification and allow water to mix evenly from top to bottom.
- Maintenance of high-water depth at a minimum depth of 1-1.5m depending on the size of the pond. This is because deeper water has a greater thermal mass and takes longer to heat up or cool down.
- Water loss through evaporation should be minimized by covering ponds with shade netting.
- Plant trees or create shade around the pond to provide cooler areas for fish to hide.
- Similarly, aquatic plants such as water lettuce can be introduced, this will help to create shade for the fish, oxygenate the water, and help remove excess nutrients that can contribute to algae growth.

Proper routine management:

Beside water quality management, proper routine management of the fish under culture can go a long way to mitigate temperature fluctuation by exploring the following procedures:

- By reducing the fish stocking density. This is because overcrowding stresses fish, making them more susceptible to high temperatures and diseases.
- Fish ponds should be stocked lower than the recommended carrying capacity for the chosen fish species during the heat season.
- For example, when the weather is cooler, an extensive system with earthen ponds usually has a stocking density of 10-15 fish/m^3. Semi-intensive systems usually have a stocking density of 25-35 fish/m^3.
- Regularly check for signs of stress like gasping at the surface or erratic swimming and reduce feeding rate by half.
- Partially harvest fish if temperatures remain high for extended periods, this will help to reduce stress on the remaining fish population.
- Use light-colored fish tanks or ponds. This can be achieved by using a light-colored pond liner or painting the sides white to reflect sunlight. This is because darker-colored ponds absorb more heat.

For more information on aquaculture advisory services,
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