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El Nino Conditions and Measures to be Taken by Farmers

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Agriculture is highly influenced by weather conditions, and even small changes in rainfall or temperature can significantly affect crop production. One of the most important climatic phenomena that influences weather across the globe is **El Nino**. Although El Nino does not always result in drought, it often causes delayed monsoon onset, uneven rainfall distribution, prolonged dry spells, and above-normal temperatures in many parts of India. Such conditions create uncertainty for farmers, especially those depending on rainfed agriculture. In Telangana, crops such as paddy, cotton, maize, soybean, redgram, greengram, blackgram, vegetables, mango, citrus, and other horticultural crops may experience varying degrees of stress during El Nino years. Farmers can minimize losses by adopting scientific crop planning, conserving available moisture, and following weather-based advisories.

What is El Nino?

El Nino is a periodic warming of sea surface temperatures in the central and eastern Pacific Ocean. This warming alters atmospheric circulation, which affects rainfall patterns worldwide. In India, El Niño is generally associated with weaker southwest monsoon conditions, though its impact varies across regions and seasons.

Possible Effects of El Nino on Agriculture

- Delay in onset of monsoon leading to delayed sowing.
- Long dry spells after sowing causing poor germination.
- Reduced soil moisture affecting crop establishment.
- Moisture stress during flowering and grain formation.
- Higher daytime temperatures causing heat stress.
- Increased irrigation requirement.
- Reduced fertilizer use efficiency.
- Increased incidence of sucking pests such as aphids, jassids, whiteflies, and thrips in cotton and vegetables.
- Outbreak of diseases following intermittent rainfall.
- Reduction in yield and quality of agricultural produce.

Crop-wise Advisory for Farmers

Paddy

- Prefer short- and medium-duration varieties if monsoon is delayed.
- Raise nurseries only after receiving sufficient rainfall or ensure irrigation availability.
- Avoid excess nitrogen application during dry periods.
- Maintain proper water levels instead of continuous flooding.
- Use alternate wetting and drying wherever feasible to save irrigation water.
- Monitor for stem borer, leaf folder, and blast disease.

Cotton

- Complete sowing immediately after receiving adequate rainfall.
- Avoid very late sowing as it increases pest incidence and yield loss.

- Adopt recommended plant spacing.
- Use balanced fertilizer application based on soil test results.
- Install yellow sticky traps and pheromone traps.
- Regularly monitor for sucking pests and pink bollworm.

Maize

- Choose drought-tolerant hybrids suitable for the region.
- Ensure timely sowing.
- Apply fertilizers in splits.
- Remove weeds during the early crop growth stage to reduce competition for moisture.

Pulses (Redgram, Greengram and Blackgram)

- Pulses require comparatively less water and can be suitable contingency crops under delayed rainfall conditions.
- Use quality seed treated with biofertilizers and recommended fungicides.
- Adopt intercropping systems to reduce production risks.

Horticultural Crops

- Apply organic mulch around fruit trees to conserve soil moisture.
- Irrigate orchards during flowering and fruit development stages.
- Provide shade nets for vegetable nurseries wherever feasible.
- Avoid moisture stress in young orchards.
- Regularly monitor for fruit flies, sucking pests, and fungal diseases.

Water Management

Water conservation becomes the most important practice during El Niño years.

- Harvest rainwater through farm ponds and check dams.
- Repair irrigation channels before the cropping season.
- Adopt drip and sprinkler irrigation wherever possible.
- Irrigate only during critical crop growth stages.
- Avoid unnecessary irrigation losses.

Soil Health Management

Healthy soil withstands climatic stress better than degraded soil.

- Apply farmyard manure, compost, or vermicompost before sowing.
- Incorporate crop residues into the soil.
- Use green manuring wherever feasible.
- Follow soil test recommendations for fertilizer application.
- Apply biofertilizers to improve nutrient availability.

Pest and Disease Management

Weather fluctuations often favour pest multiplication.

- Monitor fields regularly.
- Avoid indiscriminate pesticide application.
- Follow Integrated Pest Management (IPM) practices.
- Encourage natural enemies.
- Spray pesticides only after reaching the economic threshold level and as per agricultural department recommendations.

Contingency Crop Planning

If monsoon is delayed:

- Shift to short-duration crop varieties.
- Choose alternative crops such as pulses, millets, sesame, or fodder crops depending on rainfall and local recommendations.
- Avoid repeated sowing unless adequate soil moisture is available.
- Follow contingency crop plans prepared for the district.

Importance of Weather-Based Advisories

Farmers should regularly follow:

- India Meteorological Department (IMD) weather forecasts.
- Agrometeorological Advisory Services.
- Krishi Vigyan Kendra advisories.
- State Department of Agriculture advisories.
- Mobile-based weather and agricultural advisory services.

Timely decisions based on weather forecasts can reduce production losses and improve input use efficiency.

Role of Farmers

- Plan cropping according to rainfall availability.
- Avoid unnecessary expenditure on inputs under uncertain weather.
- Maintain records of rainfall and crop performance.
- Adopt mechanization to complete operations on time.
- Participate in farmer training programmes conducted by Krishi Vigyan Kendras and the Department of Agriculture.
- Enroll in crop insurance schemes for risk mitigation.

Conclusion

Climate variability is becoming an integral part of agriculture, and El Niño is one of the major climatic factors influencing crop production. While farmers cannot control weather conditions, they can reduce risks by adopting scientific crop planning, conserving water, maintaining soil health, using balanced fertilizers, implementing integrated pest management, and following weather-based advisories. Preparedness, timely decision-making, and adoption of climate-resilient technologies will help farmers protect their crops, improve productivity, and ensure sustainable agricultural livelihoods even under challenging climatic conditions.

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