

Root Coder AI - Farmer's Assistant for India



Hello! I am Root Coder AI, your expert agricultural assistant for India Farmers. How can I help you with your farming today? You can ask a question or upload an image.



My tomato leaves are turning yellow and curling—what should I do



Namaste! I'm Root Coder AI, your agricultural assistant.

Yellowing and curling tomato leaves can be caused by several factors. Here's what you should look for and what you can do:

Possible Causes & Solutions:

1. Nutrient Deficiency (Common: Nitrogen or Magnesium):

- **Symptoms:** Nitrogen deficiency usually causes older, lower leaves to turn yellow first. Magnesium deficiency causes yellowing between the veins, while the veins remain green.

- Apply well-rotted compost or farmyard manure around the base of the plants.
- For magnesium deficiency, dissolve 1-2 tablespoons of Epsom salt (magnesium sulfate) in 4 liters of water and spray on leaves or apply to the soil around the plant.
- Use liquid seaweed fertilizer for a general nutrient boost.
- **Chemical Remedy:**
 - Apply a balanced NPK fertilizer (e.g., 10-26-26 or 19-19-19) as per recommended dosage.
 - For specific deficiencies, use micronutrient formulations containing magnesium or nitrogen.

2. Water Stress (Under-watering or Over-watering):

- **Symptoms:** Under-watering causes leaves to wilt and then curl inwards. Over-watering can lead to root rot, causing leaves to yellow and drop.
- **Organic Remedy:**
 - Ensure consistent watering. Check soil moisture daily by sticking your finger about 2 inches deep. Water when the top soil feels dry.
 - Apply a layer of mulch (straw, dry leaves) around the plants to conserve soil moisture and regulate temperature.
- **Chemical Remedy:** (No chemical remedy for water stress, focus on good watering practices.)

3. Pests (Aphids, Whiteflies, Mites):

- **Symptoms:** Small insects on the undersides of leaves, sticky residue (honeydew), stunted growth, and distorted leaves. Mites cause fine webbing and stippling.
- **Organic Remedy:**
 - Spray neem oil solution (5-10 ml per liter of water) every 5-7 days, especially on the undersides of leaves.
 - Use an insecticidal soap spray.
 - Introduce beneficial insects like ladybugs (available from some local suppliers).
- **Chemical Remedy:**
 - For sucking pests like aphids and whiteflies, use systemic insecticides like Imidacloprid (e.g., Confidor) or Thiamethoxam (e.g., Actara) as per label instructions.
 - For mites, use specific miticides like Propargite (e.g., Omite).

- **Symptoms:** Severe yellowing, upward curling of leaves, stunted growth, and reduced fruit set. Often spread by whiteflies.
- **Organic Remedy:**
 - Remove and destroy infected plants immediately to prevent spread.
 - Control whitefly populations using organic methods mentioned above.
 - Use virus-resistant tomato varieties if available in your region.
- **Chemical Remedy:**
 - There is no chemical cure for viral diseases. Focus on controlling the insect vectors (whiteflies) using insecticides like those mentioned above.

Recommendation: First, closely inspect your plants for any visible pests. Then, check your watering schedule and soil moisture. Adjust as needed. If no pests are visible and watering is consistent, consider nutrient deficiencies.

Hope this helps your tomato plants recover!



How to control fall armyworm in maize without expensive chemicals?



Hello! I'm Root Coder AI. I understand you're looking for cost-effective, non-chemical ways to control fall armyworm in maize. This pest can be very damaging, but there are several effective organic and cultural methods you can employ:

- **Hand Picking & Crushing:** Regularly inspect your maize plants, especially the whorls (the funnel-shaped leaves at the top). Look for egg masses (usually laid on the underside of leaves and covered with a fuzzy layer) and young larvae. Crush them manually. This is most effective in smaller fields.
- **Ash/Sand Application:** Apply a mixture of wood ash and fine sand directly into the maize whorl. This irritates the larvae, physically damages them, and can prevent them from feeding effectively. You can also use a mixture of sand and lime.
- **Neem Oil Spray (Neemastra):** Neem is a powerful natural pesticide widely available in

mild soap or detergent as an emulsifier. Spray thoroughly, focusing on the whorls, in the evening. Repeat every 5-7 days during active infestation.

- **Chilli-Garlic-Ginger Spray:** Blend green chillies (5-6), garlic cloves (10-12), and a small piece of ginger with water. Strain the mixture and dilute it further (1 part concentrate to 5-10 parts water). Add a little soap for adhesion and spray on the plants. This acts as a repellent and antifeedant.
- **Biological Control:** Encourage natural predators like birds (by installing perches), parasitic wasps (like *Telenomus remus* and *Trichogramma* species), and predatory beetles. These can significantly reduce fall armyworm populations.
- **Pheromone Traps:** Use pheromone traps not just for monitoring but also for mass trapping male moths. This helps reduce the breeding population. Install traps at a density of 5-10 per acre.
- **Crop Rotation:** Avoid continuous maize cropping. Rotate maize with non-host crops to break the pest cycle.
- **Early Sowing:** In some regions, early sowing can help maize escape the peak infestation period of fall armyworm.

These methods, especially when used in combination, can effectively manage fall armyworm without relying on expensive chemical pesticides.



Best organic treatment for powdery mildew in cucumbers?



Hello! I'm Root Coder AI, your agricultural assistant.

For powdery mildew in cucumbers, here are some effective organic treatments:

1. **Neem Oil Spray:** Mix 5-10 ml of pure neem oil with 1 litre of water and a few drops of mild liquid soap (as an emulsifier). Spray thoroughly on all affected plant parts, including the undersides of leaves, every 5-7 days until the mildew is gone. Neem oil acts as an anti-fungal and is very popular in India.
2. **Baking Soda Spray:** Dissolve 1 tablespoon of baking soda (sodium bicarbonate) and 1

The baking soda changes the pH on the leaf surface, making it difficult for the fungus to grow.

3. **Milk Spray:** Mix 1 part cow's milk with 9 parts water. Spray this solution on the cucumber plants weekly. The proteins in the milk are believed to create an antiseptic effect when exposed to sunlight, helping to control the fungus.

Additionally, consider these preventive measures:

- **Good Air Circulation:** Ensure plants are spaced adequately to allow for good airflow, which reduces humidity around leaves.
- **Proper Watering:** Water the base of the plants in the morning, avoiding overhead watering that can wet the leaves unnecessarily.
- **Remove Affected Leaves:** Prune and dispose of severely infected leaves to prevent the spread of spores.

Choose the method most convenient for you and apply consistently for the best results!



Best organic treatment for powdery mildew in cucumbers



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For powdery mildew in cucumbers, here are some effective organic treatments:

1. **Neem Oil Spray:** Mix 5-10 ml of pure neem oil with 1 litre of water and a few drops of mild liquid soap (as an emulsifier). Spray thoroughly on all affected parts of the plant, especially the undersides of leaves, every 7-10 days until the disease subsides. Neem oil works as an anti-fungal and is safe for beneficial insects.
2. **Baking Soda/Potassium Bicarbonate Spray:** Dissolve 1 tablespoon of baking soda (sodium bicarbonate) or, preferably, potassium bicarbonate in 1 litre of water with a few drops of mild liquid soap. Spray this solution on the affected foliage. Potassium bicarbonate is often more effective and less likely to cause leaf burn than baking soda.

3. **Milk Spray:** Mix fresh cow's milk (or skim milk) with water in a 1:10 ratio (1 part milk to 10 parts water). Spray this solution on the affected plants every 7-10 days. The proteins in milk are believed to have anti-fungal properties.

Additionally, consider these preventive measures:

- Ensure good air circulation around plants by proper spacing and pruning.
- Water plants at the base in the morning to allow leaves to dry quickly.
- Use disease-resistant cucumber varieties if available.



Will heavy rain in Thrissur affect my pepper crop this week?"



Hello! I'm Root Coder AI.

Yes, heavy rain in Thrissur can significantly affect your pepper crop this week. Here are the potential issues and what you can do:

Potential Issues:

1. **Waterlogging and Root Rot:** Pepper plants are highly sensitive to waterlogging. Heavy, continuous rain can lead to poor soil aeration, causing root damage and increasing the risk of diseases like *Phytophthora foot rot* (Kodi Azhukal), which is lethal.
2. **Nutrient Leaching:** Excessive rainfall can wash away essential nutrients from the soil, especially nitrogen.
3. **Flower/Fruit Drop:** Heavy rain during flowering can lead to poor pollination and cause developing flowers and young fruits to drop.
4. **Increased Humidity & Fungal Diseases:** High humidity after rain creates ideal conditions for other fungal diseases like anthracnose and leaf spots.
5. **Physical Damage:** Strong winds often accompany heavy rain, which can cause physical damage to vines and supports.

1. Drainage Management (Immediate & Preventive): * **Ensure Good Drainage:** Check your field for areas where water is pooling. If possible, create shallow trenches or channels to drain excess water away from the base of the plants. * **Raised Beds:** If your plants are in raised beds, ensure the drainage channels around them are clear.

2. Disease Management (Post-Rain):

- * **For Root Rot (Phytophthora foot rot):**
 - * **Organic:** Once the soil is less saturated, apply bio-fungicides.
 - * **Chemical:** If you suspect *Phytophthora* infection (yellowing and wilting), consult a local agricultural extension for specific fungicides.
- * **For General Fungal Diseases (e.g., Anthracnose, Leaf Spots):**
 - * **Organic:** Once the leaves are dry, spray *Bordeaux mixture* or copper fungicides.
 - * **Chemical:** If fungal spots become visible, apply a contact fungicide.

3. Nutrient Management: * **Foliar Spray:** After the heavy rain has passed and soil conditions normalize, consider a foliar spray of a balanced NPK fertilizer (e.g., 19:19:19) at a low concentration (5g/litre of water) to compensate for any nutrient leaching.

Monitor your crop closely in the coming days for any signs of stress or disease. Good luck!



How to improve sandy soil fertility for vegetable farming?



Hello there! Root Coder AI here to help you improve your sandy soil for vegetable farming. Sandy soils can be challenging as they drain quickly and struggle to hold nutrients, but with the right approach, you can significantly boost their fertility.

Here's how you can improve sandy soil fertility:

Organic Methods (Highly Recommended for Long-Term Health):

1. **Incorporate Organic Matter:** This is the most effective method

- **Compost:** Regularly mix generous amounts of well-rotted compost into your soil. It improves water retention and nutrient-holding capacity.
 - **Farmyard Manure (FYM):** Well-decomposed cow dung manure or other animal manures are excellent. Ensure it's fully decomposed to avoid burning plants and introducing weeds.
 - **Green Manure:** Grow cover crops like sunn hemp, dhaincha, or legumes (e.g., moong, urad) and then turn them into the soil before they flower. This adds biomass and nitrogen.
 - **Crop Residues:** Chop and incorporate leftover plant material from previous crops.
2. **Mulching:** Apply a layer of organic mulch (straw, dried leaves, wood chips, sugarcane trash) on the soil surface. This reduces water evaporation, keeps soil cooler, suppresses weeds, and gradually adds organic matter as it decomposes.
 3. **Compost Tea/Liquid Manure:** Use liquid feeds made from compost or diluted manure to provide a quick boost of nutrients and beneficial microbes.
 4. **Biochar:** If available, adding biochar can significantly enhance water and nutrient retention over the long term, especially in sandy soils.

Chemical/Inorganic Methods (Use Judiciously):

1. **Balanced Fertilizers (NPK):** Apply NPK fertilizers based on soil test recommendations. Since sandy soils leach nutrients quickly, consider:
 - **Split Applications:** Apply smaller doses more frequently rather than one large dose.
 - **Slow-Release Fertilizers:** These formulations release nutrients gradually, making them more effective in sandy soils.
2. **Micronutrient Supplementation:** Sandy soils can be deficient in micronutrients (like zinc, boron, iron). If soil tests indicate a deficiency, apply specific micronutrient fertilizers.
3. **Soil Conditioners (e.g., Bentonite Clay):** In some areas, adding finely ground bentonite clay can help improve the soil's cation exchange capacity (nutrient retention) and water holding ability. This is a more significant amendment and should be considered if available and economically viable.

General Tips:

- **Frequent, Light Irrigation:** Sandy soils drain quickly, so water more often but with less volume each time to prevent leaching.
- **Crop Rotation:** Practice crop rotation to maintain soil health, break disease cycles, and

By consistently applying these methods, especially focusing on organic matter, you will transform your sandy soil into a fertile environment suitable for bountiful vegetable harvests. Good luck!



What is today's mandi price of coconut in Kerala?"



Namaste! I'm Root Coder AI.

I cannot access real-time market prices, including today's mandi price of coconut in Kerala. Market prices fluctuate frequently based on supply, demand, and local conditions.

To get the most accurate and up-to-date prices, I recommend checking:

- Local agricultural market (mandi) websites or apps that track daily prices.
- Government agricultural department portals specific to Kerala.
- Contacting local traders or farmer cooperatives directly.



Should I sell my onions now or wait for better prices?"



Hello! I'm Root Coder AI.

I understand you're looking for advice on when to sell your onions. Unfortunately, as an AI, I cannot access real-time market prices or predict future price fluctuations. Market prices can change rapidly due to various factors like supply, demand, weather, and government policies.

However, I can offer some general advice:

- **Monitor Local Mandis:** Keep a close eye on prices at your nearest mandis (agricultural markets) and APMCs (Agricultural Produce Market Committees) daily. Talk to other farmers and traders to gauge the current sentiment.
- **Consider Storage Costs & Spoilage:** If you store your onions, factor in the costs of storage, potential weight loss, and the risk of spoilage. If prices are decent now and your storage conditions aren't ideal, selling might be a safer option.
- **Analyze Your Needs:** Consider your immediate financial needs. If you require funds urgently, selling at current viable prices might be more practical.
- **Historical Trends:** While not a guarantee, reviewing historical price trends for onions around this time of year in your region might give you a general idea, but remember, past performance doesn't predict future results.

Ultimately, the decision to sell now or wait depends on your assessment of the current market, your storage capabilities, and your financial situation.



What subsidy can I get for drip irrigation in Kerala?"



Namaste! I'm Root Coder AI, your agricultural assistant.

For drip irrigation subsidies in Kerala, you can avail benefits primarily through the **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)**, specifically its "Per Drop More Crop" component.

This scheme aims to promote water-efficient irrigation systems. The subsidy rates can vary based on the farmer's category (small, marginal, SC/ST, general) and the type of drip irrigation system. Generally, substantial financial assistance is provided.

To get the most accurate and current information on specific subsidy percentages, eligibility criteria, and application procedures, I highly recommend you:

1. **Contact your nearest Krishi Bhavan (Agricultural Office).**

2. Visit the official website of the **Kerala Department of Agriculture Development and Farmers' Welfare**.

They will guide you through the application process and provide details on all available



Any pest outbreaks reported in my district this week?



Hello! I'm Root Coder AI.

I cannot access real-time, district-specific pest outbreak reports. This kind of information is dynamic and highly localized.

For the most accurate and up-to-date information on pest outbreaks in your specific district, I recommend:

- Contacting your local Krishi Vigyan Kendra (KVK).
- Checking with your State's Department of Agriculture.
- Consulting local agricultural extension officers.
- Engaging with local farmer cooperatives or networks.



When is the best time to sow paddy in Kerala this year?



Hello! I'm Root Coder AI.

1. **Mundakan (Kharif):** This is the primary season, with sowing typically done from **June to July**, coinciding with the onset of the Southwest Monsoon.
2. **Puncha (Rabi):** The second season, usually sown from **October to November**, utilizing the Northeast Monsoon and residual moisture.

The best time for you this year depends on which crop cycle you intend to follow.



Which fertilizer is suitable for banana in red soil?



Hello there! I'm Root Coder AI, your agricultural assistant.

For banana cultivation in red soil, you'll need a balanced approach, as red soils are often slightly acidic and can be deficient in certain nutrients like phosphorus and zinc, while sometimes having higher iron content.

Here's a breakdown of suitable fertilizers:

Key Nutrients for Banana:

1. **Nitrogen (N):** Essential for vegetative growth, leaf development, and overall plant vigor.
2. **Phosphorus (P):** Crucial for root development, flowering, and fruit setting. Red soils often fix phosphorus, making it less available, so ensure adequate supply.
3. **Potassium (K):** Critically important for fruit development, size, quality, disease resistance, and overall plant health. Bananas are heavy feeders of potassium.

Fertilizer Recommendations:

1. Organic Options:

- **Farmyard Manure (FYM) / Compost:** Incorporate 10-20 kg per plant annually during soil preparation or as a top-dressing. This improves soil structure, water retention, and provides a slow release of all major and micronutrients.

- **Neem Cake:** Apply 1-2 kg per plant. Provides nitrogen, acts as a slow-release fertilizer, and has pesticidal properties.
- **Bone Meal (for Phosphorus):** A good organic source of phosphorus. Apply 100-200g per plant, especially if soil tests indicate P deficiency.
- **Wood Ash / Potash-rich organic manure (for Potassium):** If available, wood ash can provide potassium, but test soil pH as it can raise it.

2. Chemical Options:

- **N:P:K Ratio:** A common general recommendation for bananas is around **3:1:6** or **3:1:2** (e.g., 15-5-30 or 10-5-10). However, the specific ratio and quantity should ideally be based on soil test results.
- **Typical Nutrient Requirement (per plant per year):**
 - **Nitrogen (N):** 100-200 grams
 - **Phosphorus (P₂O₅):** 30-60 grams
 - **Potassium (K₂O):** 200-400 grams (often split into multiple applications)
- **Specific Fertilizers:**
 - **Urea (for Nitrogen):** Apply in split doses.
 - **DAP (Di-Ammonium Phosphate) or SSP (Single Super Phosphate) (for Phosphorus):** SSP is often preferred in red soils as it also supplies sulfur and calcium, which can be beneficial.
 - **Muriate of Potash (MOP) / Sulphate of Potash (SOP) (for Potassium):** MOP is cost-effective. SOP is better if your soil needs sulfur or if salinity is a concern.

Micronutrients:

- Red soils can be deficient in **Zinc (Zn)** and sometimes **Boron (B)**.
- Consider applying **Zinc Sulphate** (20-30g per plant) annually or **foliar sprays** of micronutrient mixtures if deficiencies are observed or indicated by soil tests.

Application Strategy:

- **Split Doses:** Apply fertilizers in 3-5 split doses throughout the year, especially Nitrogen and Potassium, to ensure continuous nutrient availability and minimize leaching losses.
- **Timing:** The first application usually within 1-2 months of planting, and subsequent applications every 2-3 months until flowering.

- **Placement:** Apply fertilizers in a ring around the plant, 30-45 cm away from the pseudo-stem, and mix lightly with soil, then irrigate.

Recommendation: The most accurate way to determine fertilizer needs is through a **soil test**. This will tell you the exact nutrient status and pH of your red soil, allowing for a precise and efficient fertilizer program.

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