rupiya.app

CHILLI

RESIDUE FREE FARMING

with

rupiya.app

Soil:

Chilli is grown in many types of soils-sandy to heavy clay. A well-drained, fairly light fertile loam with a fair moisture-holding capacity is ideal. Light soils produce better-quality fruits than heavy soils. Chilli crop prefers a soil reaction ranging from pH 6–7.

Climate

Chili peppers thrive in warm climates with plenty of sunlight. They prefer temperatures between 70°F to 85°F (21°C to 29°C) during the day and above 60°F (15°C) at night. While they can tolerate some cooler temperatures, prolonged exposure to frost can damage or kill the plants. Adequate sunlight, well-draining soil, and moderate humidity levels are essential for healthy chili plant growth and fruit development.

Season of sowing

1. January - February
2. June - July
3. September- October

Seed rate
Hybrids: 200 - 250 g / ha.
Nursery area: 100 sq.m / ha.

Seed treatment:

Treat the seeds with *Soil Shakti* @ 4 ml/kg or *Cereal Shakti* @ 10 ml/kg and sow in lines spaced at 10 cm in raised nursery beds and covered with sand. Watering with a rose-can has to be done daily. Drench the nursery with Rupiya Combishield Shakti @ 2.5 g/l of water at 15 days intervals against damping off disease..

Land Preparation:

Prepare the field by ploughing it 2-3 times, ensuring clod crushing after each ploughing session. Prior to sowing, incorporate compost or Farm Yard Manure at a rate of 150-200 qtl/acre into the soil, ensuring thorough mixing 15-20 days beforehand. Create ridges and furrows spaced at 60cm intervals.

For enhanced soil health, apply 0.5 liter /acre Rupiya NPK Shakt mixed with 20 kg of FYM.

It's crucial to avoid cultivating tomatoes and chilies in the same field or nearby due to shared susceptibility to pests and diseases, including anthracnose and bacterial infections. Opting for intercropping with onion and coriander not only diversifies income streams but also aids in weed management. Additionally, intercropping with onion, garlic, or marigold helps control nematode populations.

Nursery Management and transplantation

Prepare the nursery by forming raised beds measuring 1 meter in width and convenient length. Blend sterilized cocopeat at a rate of 300kg with 1 kg of Rupiya Earthwise,

Utilize approximately 1.2 kg of cocopeat to fill each protray. You'll need 120 protrays to produce 11,600 seedlings, sufficient for one acre of land. Sow treated seeds in portrays at a rate of 1 seed per cell, covering them with cocopeat. Stack the trays and cover them with a polythene sheet until germination occurs. Once seeds have germinated, cover the bed with a 400 mesh nylon net or thin white cloth to shield seedlings from pests and diseases.

After six days, transfer the portrays containing germinated seedlings individually onto the raised beds within the shade net. Water them daily using a rose can until germination is complete. At 18 days after sowing, drench the seedlings with a 0.5% solution (5gm/Ltr) of 19:19:19 fertilizer.

For field transplantation, select seedlings that are 6-8 weeks old or have reached a height of 15-20 cm after 30-40 days of nursery preparation.

Nursery preparation should ideally commence from late October to mid-November. Ensure the nursery area is covered with a 50% shade net, and protect the sides with 40/50 mesh insect-proof nylon netting.

Seedlings are typically ready for transplantation within 21-30 days, usually falling between February and March.

For field transplantation, utilize row-to-row spacing of 75 cm and plant-to-plant spacing of 45 cm. The transplantation method is employed for sowing the seedlings.

Weed Control

For effective weed control, start by applying Pendimethalin at a rate of 1 liter per acre, or Fluchloralin at 800 ml per acre, as a pre-emergence herbicide. Follow this with hand weeding approximately 30 days after planting.

Initiate the first weeding operation 25 days after planting. Depending on the weed intensity, continue with subsequent weeding as necessary to maintain a weed-free field. Regular monitoring and prompt action will help keep the field free of weeds.

Irrigation

Irrigation should be applied judiciously, avoiding excessive moisture as it can adversely affect the crop. Only irrigate when necessary, as heavy irrigation can lead to lanky vegetative growth and flower drop.

The frequency and amount of irrigation should be adjusted based on soil and climatic conditions. If plants show signs of wilting, particularly evident around 4 pm, it's a clear indication that irrigation is needed.

During critical stages like flowering and fruit development, ensure adequate water supply as these are the periods of highest water requirement for the plants.

Prevent water stagnation in both the nursery and field to avoid fungal infections, which can be detrimental to plant health. Regular monitoring of soil moisture levels and plant conditions will help in determining the appropriate timing and amount of irrigation needed.

FERTILIZER

For chili plants, apply balanced fertilizer with an NPK ratio of 10-10-10 or 20-20-20 throughout the growing season. Start with organic matter before planting and a nitrogen-rich fertilizer during early growth. Switch to balanced fertilizer during flowering and fruiting. Consider soil tests for micronutrients and follow application rates diligently**.**

Sr No	Days After Sowing	Fertigation	Qty per acre
1	Basel dose	Neem DOC + Rupiya Orgo +Rupiya Earthwise + 10:26:26	50 kg + 50 kg + 5 kg + 50 kg
2	Day 07	19:19:19	2.5 kg
3	Day 11	19:19:19+ Chilited Mic.Nutri.	2.5 kg + 1 kg
4	Day 16	19:19:19	2.5 kg
5	Day 21	19:19:19	2.5 kg
6	Day 25	12-61-0 + Calcium Nitrate	2.5 kg + 5 kg
7	Day 30	12-61-0 + 13-40-13	2.5 kg + 2.5 kg
8	Day 35	12-61-0 +	2.5 kg + 1 kg
9	Day 40	12-61-0 + 13-40-13	2.5 kg + 2.5 kg
10	Day 45	0-52-34+ Chilited Mic.Nutri.	2.5 kg + 1 kg
11	Day 50	0-52-34	2.5 kg
12	Day 55	0-52-34 + Calcium Nitrate	2.5 kg + 5 kg
13	Day 60	13-40-13	2.5 kg
14	Day 65	13-40-13	2.5 kg
15	Day 70	13-40-13	2.5 kg
16	Day 75	13-40-13 + Chilited Mic.Nutri.	2.5 kg + 1 kg
17	Day 85	00-00-50 + Calcium + Boron	2.5 kg + 5 kg +1 kg
18	Day 95	13-00-45	2.5 kg
19	Day 105	13-00-45 + 0-52-34	2.5 kg
20	Day 115	13-00-45 + Chilited Mic.Nutri.	2.5 kg + 1 kg
21	Day 125	13:40:13 + Calcium + Boron	2.5 kg + 5 kg+ 1 kg
22	Day 135	13:40:13 + 0-52-34	2.5 kg
23	Day 145	13:40:13	2.5 kg
24	Day 155	00-00-50 + Boron	2.5 kg + 1 kg
25	Day 165	00-00-50	2.5 kg
26	Day 175	00-00-50	2.5 kg

Plant Protection

Pests

Fruit borers

Caterpillar eats leaves of crops afterward they enter into fruit and cause a heavy loss in yield management.
Collect and destroy damaged fruits and grown-up caterpillars. Set up pheromone traps for Helicoverpa armigera or Spodoptera litura at 5 Nos./acre.

To manage fruit borers effectively, it's essential to employ various control measures:

1. Manual Removal: Regularly inspect the crop for damaged fruits and caterpillars. Remove and destroy affected fruits and grownup caterpillars to prevent further damage.

2. Pheromone Traps: Install pheromone traps for Helicoverpa armigera or Spodoptera litura at a rate of 5 traps per acre. These traps help in monitoring and controlling the population of fruit borers by attracting and trapping male moths.

3. Chemical Sprays:

In case of heavy infestation of fruit borers, spray Chlorpyrifos + Cypermethrin (NurelD/Amla) at a rate of 30 ml per 12 liters of water using a power sprayer. Ensure thorough coverage of the crop.
Alternatively, spray Emamectin benzoate 5% SG at a rate of 4 gm per 10 liters of water, or Flubendiamide 20 WDG at a rate of 6 gm per 10 liters of water. Apply these sprays when necessary, following recommended application guidelines

.

Mites

These are widely distributed pest observed throughout the world. It attacks on several crops like potato, chilli, beans, cotton, tobacco, curcurbit, castor, jute, coffee, lemon, citrus, blackgram, cowpea, pepper, tomato, sweet potato, mango, papaya, brinjal, guava. Nymphs and adults feed exclusively on the lower surface of the leaves. Infected leaves give cup shape appearance. Heavy infestation results in defoliation, bud shedding and drying of leaves.

Mites pose a significant threat to various crops,

affecting their health and productivity. Here's how to address mite infestations effectively:

1. Identification and Monitoring: Regularly monitor crops for signs of mite infestation, such as yellowing or cupshaped appearance of leaves, defoliation, bud shedding, and drying of leaves.

2. Chemical Control: If infestation of yellow mites and thrips is observed, spray Chlorfenapyr at a rate of 1.5 ml per liter of water, and Abamectin at a rate of 1.5 ml per liter of water. Ensure thorough coverage of the affected plants.

For effective control of mites, especially in severe infestations, spray Spiromesifen 22.9SC at a rate of 200 ml per acre, diluted in 180 liters of water. Apply the spray evenly, targeting the lower surface of the leaves where mites are commonly found.

3. Preventive Measures: Maintain proper crop hygiene, weed control, and irrigation practices to minimize conditions favorable for mite infestation. Additionally, rotate crops and

avoid monoculture to disrupt mite populations.

integrated pest management are key to effective mite control.

Aphids:

They attack mostly in the winter month and later stage of the crop. They suck sap from the leaf. They excrete honey-like substance and develop sooty mold i.e. blackish colour fungus on the calyx and pods thus deteriorating the quality of the product. Aphids also work as important insect vectors for chili mosaic. Mosaic disease transmitted by aphids causes 20-30 percent loss in yield.

To achieve residue-free production and sustainable pest management while effectively controlling aphids:

1. Implement Biological Control: Introduce natural predators like ladybugs, lacewings, and parasitic wasps to control aphid populations.

2. Utilize Physical Control Methods: Use water sprays to dislodge aphids, employ reflective mulches, and trap cropping to deter aphids from settling on crops.

4. Incorporate Beneficial Plants: Intercrop with aromatic herbs that naturally repel aphids.

5. Monitor and Intervene Early: Regularly scout fields for aphid presence and intervene promptly before populations reach damaging levels.

6. Consider Resistant Varieties: Select crop varieties that are resistant or less susceptible to aphid infestations.

By integrating these alternative methods into a comprehensive pest management plan, residue-free production can be achieved while promoting environmental sustainability and maintaining crop health and productivity.

Whitefly

The nymphs and adults of White fly suck the cell sap from the leaves and weaken the plants. They secrete honeydew on which black sooty mould develops on leaves. They also transmit leaf curl diseases. To check infestation use yellow sticky traps coated with grease and sticky oils.

To manage whitefly infestations effectively:

1. Yellow Sticky Traps: Use yellow sticky traps coated with grease and sticky oils to monitor and trap adult whiteflies. This method helps reduce the population of whiteflies and aids in the early detection of infestations.

2. Chemical Control: In cases of severe infestation, employ chemical sprays. Options include:

Acetamiprid 20SP: Mix 4gm per 10 liters of water and spray onto affected plants. Triazophos: Dilute 2.5 ml per liter of water and apply as a spray. Profenophos: Mix 2 ml per liter of water and use as a spray.

Repeat the spray application recommended by the Rupiya Experts after 15 days to target emerging whitefly populations and ensure thorough coverage of the plants.

By incorporating these control measures, you can effectively manage whitefly infestations and minimize damage to crops caused by whiteflies and associated diseases. Regular monitoring and timely intervention are key to successful pest management.

Disease and their control

Powdery mildew

Patchy, White powdery growth appears on lower side of leaves. It parasitizes the plant using it as a food source. It commonly occurs on older leaves just before or at fruit set. But it can develop at any stage of crop development. In severe infestation it causes defoliation.

To effectively manage powdery mildew infestations:

1. Cultural Practices: Prevent water logging in the field by ensuring proper drainage. Maintain cleanliness in the field by removing plant debris and weeds, which can harbor the fungus.

2. Chemical Control: Spray Hexaconazole along with a sticker at a rate of 1 ml per liter of water. Ensure thorough coverage of both sides of the leaves.

Water-soluble Sulphur: For mild infestations, spray water-soluble sulphur at a rate of 20 gm per 10 liters of water. Repeat the application 23 times at intervals of 10 days.

3. Weather Considerations: Be vigilant after a sudden rainfall, as humid conditions increase the likelihood of powdery mildew development. Monitor plants closely during these periods and be prepared to take preventive measures.

By implementing these control measures and maintaining proactive monitoring, you can effectively manage powdery mildew infestations and minimize damage to crops.

Phytophthora Blight:

It is caused by the fungus Phytophthora capsici. It is soil borne and commonly observed on soil with low drainage capacity and areas where proper cultural practices have not been maintained. Also cloudy weather is favourable for spread of this disease.

To manage Phytophthora blight effectively:

1. Cultural Practices: Avoid crop rotation with susceptible plants such as brinjal, tomato, cucumber, and pumpkin for at least three years. This helps reduce the buildup of the pathogen in the soil. Maintain proper cultural practices, including good drainage and appropriate irrigation methods, to minimize conditions favorable for Phytophthora capsici.

2. Chemical Control: Spray Copper oxychloride at a rate of 250 gm per 150 liters of water. Apply this spray to affected plants to help control the spread of the fungus.

3. Weather Considerations: Be aware that cloudy weather conditions favor the spread of Phytophthora blight. Monitor weather forecasts and be prepared to take preventive measures during periods of increased disease risk.

By implementing these control measures and practicing good agricultural management, you can effectively manage Phytophthora blight and reduce its impact on your crops.

Thrips

Thrips, tiny insects with fringed wings, cause stippling and curling of chili leaves. Identifiable by their size, behavior, and feeding damage, they congregate on leaf undersides. Management includes monitoring, biological control, yellow sticky traps, and insecticidal sprays. Integrated pest management ensures effective thrips control in chili crops.

To effectively manage thrips infestations:

1. Monitoring: Use blue sticky traps at a rate of 68 traps per acre to monitor the severity of thrips incidence. These traps will help assess the population levels of thrips in the field.

2. Biological Control: To reduce thrips incidence, spray Verticillium lecanii at a rate of 5 gm per liter of water. This biological control agent can help in managing thrips populations.

3. Chemical Control: If thrips infestation is significant, consider chemical treatments: Imidacloprid 17.8SL: Mix 1 ml per liter of water and apply as a spray. Fipronil: Use either Fipronil at a rate of 1 ml per liter of water or Fipronil 80%WP at a rate of 2.5 ml per liter of water. Acephate 75% WP: Mix 1.0 gm per liter of water and apply as a spray. Thiamethoxam 25% WG: Perform drenching with

Thiamethoxam at a rate of 1.0 gm per liter of water.

By incorporating these control measures, you can effectively manage thrips infestations and minimize damage to crops caused by their feeding activities. Regular monitoring and timely intervention are key to successful thrips management.

Dieback And Fruit Rot:

The disease causes drying of branches and leaves, along with circular black spots that are sunken and water soaked. Premature fruit drop occurs due to numerous spots on fruits. Spread is facilitated by wind and rain. Affected plants yield fewer, lower quality fruits.

To effectively manage dieback and fruit rot diseases:

1. Preventive Measures: Start with disease-free seeds to avoid introducing the pathogen into your crop.

Treat seeds with Thiram or Captan at a rate of 4 gm per kg of seeds before sowing. This seed treatment helps eliminate seed-borne inoculum.

2. Chemical Control: Spray with Mancozeb at a rate of 2.5 gm per liter of water or Copper oxychloride at a rate of 3 gm per liter of water. Apply the first spray just before flowering and take advice from the Rupiya experts before second spray at the time of fruit formation. Ensure thorough coverage of the plant foliage to effectively control the spread of the disease.

3. Cultural Practices: Practice good sanitation by removing and destroying infected plant debris to prevent the spread of the disease.

Provide proper spacing between plants to improve air circulation and reduce humidity, which can promote disease development.

4. Weather Considerations: Be vigilant during rainy seasons when the disease spreads rapidly due to blowing winds and rain. Monitor weather forecasts and be prepared to take preventive measures during periods of increased disease risk.

By implementing these control measures and maintaining proactive monitoring, you can effectively manage dieback and fruit rot diseases and minimize damage to your crops.

Wilt And Damping Off

Damping off disease, soilborne and exacerbated by moist, poorly drained soil, leads to water soaked stems and seedling shriveling. Seedlings often perish before emerging, posing a threat to entire nursery batches.

To effectively manage wilt and damping off diseases:

1. Preventive Measures: Ensure proper soil drainage to prevent waterlogging, which can contribute to damping off disease.

Use disease free seeds and maintain good sanitation practices to reduce the risk of disease transmission.

Provide adequate spacing between plants to improve air circulation and reduce humidity, which can promote disease development.

2. Chemical Control for Wilt: Drench the nearby soil with Copper oxychloride at a rate of 250 gm per 150 liters of water or Carbendazim at a rate of 200 gm per 150 liters of water. This helps reduce the soilborne pathogens that cause wilt disease.

3. Biological Control for Root Rot: Perform drenching near the roots of plants with Rupiya Soil Shakti at a rate of 1 ltr per 500 liters of water. Trichoderma is a beneficial fungus that helps suppress root rot pathogens and promote healthy root development.

4. Application: Ensure thorough coverage of the soil and root zone when applying chemical or biological treatments to effectively target the pathogens causing wilt and damping off diseases.

By implementing these control measures and maintaining proactive monitoring, you can effectively manage wilt and damping off diseases and minimize damage to your crops.

Regular inspection and prompt intervention are crucial for successful disease management.

Anthracnose:

Caused by Colletotrichum piperatum and C. capsici fungi, anthracnose thrives in warm, moist conditions. It manifests as circular, water soaked black spots on plants, leading to premature fruit drop and significant yield loss.

To effectively manage anthracnose:

1. Preventive Measures: Practice crop rotation to reduce the buildup of pathogens in the soil. Ensure proper spacing between plants to improve air circulation and reduce humidity. Avoid overhead irrigation to minimize moisture on plant surfaces.

2. Chemical Control: If an infestation of anthracnose is observed, spray with Propiconazole or Hexaconazole at a rate of 1 ml per liter of water. Apply the spray evenly to cover all parts of the plant, focusing on areas prone to infection. Repeat the spray application as needed according to Rupiya

expert advice team and to the severity of the infestation and the duration of the disease-conducive conditions.

3. Timing: Apply the fungicide spray as soon as symptoms of anthracnose are detected to prevent further spread of the disease. Maintain regular monitoring of the crop to detect early signs of infection and apply treatments promptly.

4. Weather Considerations: Monitor weather conditions, especially during periods of warm temperatures and high moisture, as these conditions promote the development and spread of anthracnose.

By implementing these control measures and maintaining proactive monitoring, you can effectively manage anthracnose and minimize yield losses in your crops. Regular inspection and timely intervention are crucial for successful disease management.

Mosaic Disease

Early stages of chili plants exhibit light and green patches on leaves, stunting growth. Yellowing and chlorotic ring spots appear on leaves and fruits later. To mitigate, use diseasefree seeds, avoid monocropping, and plant two rows of maize or sorghum for every five chili rows against wind. Remove infected plants promptly.

To effectively manage yellow mosaic disease in chili crops:

1. Preventive Measures: Use healthy and diseasefree seeds for cultivation. Avoid monocropping in chili fields to reduce disease pressure. Plant two rows of maize or sorghum for every five rows of chili against the wind direction to serve as a barrier and reduce virus transmission. Uproot and destroy infected plants away from the field to prevent further spread of the disease.

2. Chemical Control for Aphids: Take a spray of Acephate 75SP at a rate of 1 gm per liter of water or Methyl demeton 25EC at a rate of 2 ml per liter of water to control aphids.

3. Soil Application of Granular Insecticides:

Apply granular insecticides like Carbofuran or Phorate at a rate of 48 kg per acre on 15 and 60 days after transplanting to manage aphids effectively. By implementing these control measures, you can effectively manage yellow mosaic disease and minimize its impact on chili crop yield.

Bacterial Leaf Spot

Bacterial Leaf Spot, prevalent in rainy seasons, causes yellowish-green spots on young leaves and dark, water-soaked spots on older leaves. Severe cases result in chlorosis and defoliation. Stem infection leads to cankerous growth and wilting branches. Fruit shows round, water-soaked spots with pale yellow borders. Control with Propiconazole or Chlorothalonil for general leaf diseases and Streptocycline plus

Copper oxychloride for bacterial leaf spot.

Harvesting :

Chili peppers can be harvested green or left to ripen on the plant, with ripened color varying by variety. To enhance yield, spray a 1% solution of Urea and Soluble K every 15 days during harvesting. For canning, harvest red-colored fruits, while those for drying are picked at full ripeness.

Harvest red chili peppers when they reach full maturity and turn a vibrant red color. Gently pluck the ripe peppers from the plant, taking care not to damage the stems or surrounding foliage. Harvest regularly to encourage continued fruit production throughout the growing season.

Drying of Red Chilis

1. Choose a well-ventilated area with low humidity, such as a sunny spot indoors or outdoors.

2. Allow the peppers to dry completely, which may take several days depending on humidity levels and pepper size.

3. Alternatively, spread the peppers out on a clean, dry surface and let them air dry.

4. Turn the peppers occasionally to ensure even drying.

5. Once the peppers are fully dried and brittle, store them properly in a cool and dry place.

Financial Details. Cost of Cultivation:

Cost of Cultivations	
Particular	**Rs.**
Spraying Cost	38265
Fertigation cost	21665
Mulching Cost	12000
Drip Cost	5000
Land rent	5000
Labour	30000
Saplings	10000
Wood Sticks	10000
Insurance cost	18000
IPM Material	2000
Green net	7000
Land preparation	7500
Total Cost of Cultivation	166430

Total Income Details	
Total Production Dried Chillies	3000 kg
Rate offered by Rupiya	150 Rs per kg
Income from the sale	4,50,000 Rs
Total Expense for production	1,66,430 Rs
Net profit	3,06,100 Rs

Note: The above given figures are for educational purposes only actual figures may vary depending upon the climate, soil, variety of seed, season & agronomical practices

rupiya.app

CONTACT INFORMATION

Manufactured & Marketed By:

Rupiya Finnovations Private Limited.

Address : 1005 & 1006, Ganesh Glory, Of. S.G. Highway, Jagatpur Road, Ahmedabad-382481, Gujarat, INDIA.

Phone : +91 75728 60606

Email : care@rupiya.app

Website : www.rupiya.app

Download on the App Store

GET IT ON Google Play