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| **Rust corn** | 1. **Managing Corn Rusts**   Farmers can benefit from several options to manage corn rusts, including hybrid selection scouting, cultural practices and fungicides. A combination of these crop protection practices provides optimum security to enhance corn yields and should be implemented to sustainably manage corn diseases.   1. **Hybrid selection**   Choosing corn hybrids with genetic disease resistance offers the best economical and effective defense against corn rusts and other foliar diseases. Although no hybrids provide resistance to all diseases, even partial resistance goes a long way in protecting corn yields. Be aware that resistant ratings for hybrids may not all be available, particularly in the Midwest, where corn rusts don’t pose a threat every year. Check with local agronomists and seed dealers to learn which hybrids might provide the desired level of disease resistance.   1. **Scouting**   Early and frequent scouting for diseases is a routine best management practice to tackle problems before they lead to economic damage. In the case of common corn rust and southern corn rust, look for lesion symptoms in the lower and upper plant leaves when environmental conditions are optimal for disease development. To aid scouting, keep in mind that the two rusts differ in development, fungi species, favorable environmental conditions and size, location and color of pustules (lesions). It’s helpful to review [guidelines to distinguish](https://www.extension.purdue.edu/extmedia/BP/BP-82-W.pdf) between the two rusts.   1. **Fungicides**   Foliar fungicides may be cost-effective in high-yield corn as a risk-management tool for rusts and [other corn diseases](https://www.cropscience.bayer.us/learning-center/articles/corn-diseases-threaten-yields). For maximum effectiveness, it’s best to use fungicide treatments at the first sign of disease. If applications are to be made after V8 but before tassel emergence, do not include an adjuvant in the tank. |
| **Corn gray leaf spot** | 1. Use of preventative management tactics—such as using a corn product that is less susceptible to gray leaf spot, practicing crop rotation, removing corn residue, or using tillage to promote the decomposition of corn debris—can help reduce the impact of gray leaf spot in high-risk fields. Gray leaf spot fungi overwinter in corn residue and can build up in corn-on-corn rotations or in reduced till/no-till cropping systems. A rotation of at least two years is recommended for fields utilizing conservation tillage and may be necessary to reduce inoculum levels, as the spores can survive for longer than a year on corn residue.3 Consult with your seed professional on corn products that have a low level of susceptibility and provide any other needed agronomic benefits 2. In fields where there is concern about GLS, scouting should start around V-10 to V-14 (10th to 14th leaf collar is visible), which should give an idea of the severity of the field infection. If gray leaf spot is present and weather conditions remain favorable for the disease, an in-season fungicide application can provide protection against grain yield loss. In most cases, fungicides should be applied at or after tasseling through the early silk growth stage (VT to R1 growth stage). Fungicide products containing a strobilurin and strobilurin/triazole premix are most effective at preventing yield loss when applied in response to GLS disease presence. |
| **Potato early blight** | 1. Effective management of this disease requires an integrated disease management approach. Early blight is primarily controlled with cultural practices and foliar fungicides. 2. Cultural practices, such as crop rotation and eradicating weed hosts such as nightshade and horsenettle, help reduce the inoculum level for subsequent plantings. Early blight persists in plant debris from one growing season to the next, so rotation to non-host crops such as small grains, corn, and soybean for two to three seasons helps reduce the amount of inoculum available for infection. Other cultural controls include timing irrigation to minimize the duration of leaf wetness, practicing fall tillage that buries plant residue, and using certified disease-free seed. The disease is often associated with crops suffering from a lack of nitrogen, particularly toward the end of the growing season on older, senescing foliage. Management of other diseases will help reduce plant stress and minimize early blight severity. Storing tubers in conditions that promote rapid suberization helps minimize infection after harvest. 3. Cultivars vary in their susceptibility to early blight and no commercially produced potato cultivar is resistant to the disease. Field resistance to foliage infection is associated with plant maturity. Since the disease favors older, senescing leaf tissue, cultivars with an earlier maturity are slightly more susceptible to early blight compared to later maturing cultivars. Potato is relatively resistant to early blight in the vegetative stages, but susceptibility gradually increases after tuber and fruit initiation, and mature plants are very susceptible to the pathogen. 4. Regular scouting of fields after plants reach 12 inches in height is recommended to detect early infections. The physiological day (P-Day) calculation can be used to predict the development of the potato plants and the potential for disease infection. Early blight risk is elevated after 300 P-Days (physiological days) have accumulated after crop emergence. Early blight management actions are recommended beyond that point. |
| **Potato late blight** | Here are some solutions for detecting and preventing late blight in potatoes:   * Fungicides   Use fungicides that contain spores, like fluazinam-containing fungicides, or Dithane (mancozeb) MZ. You can also use Tattoo C or Acrobat MZ.   * Cultural practices   Remove volunteer potatoes, control weed hosts, and manage irrigation to avoid wetness.   * Treatment   Treat tubers with a 1:1000 mercuric chloride solution for 90 minutes before storage to inhibit mycelium growth. You can also apply phosphorous acid to potatoes after harvest and before piling to prevent infection and spread. |
| **Potato tomato target** | 1. The primary strategy used to manage target spot on tomato is the regular application of fungicides. Applications should begin before symptoms appear when conditions are favorable for infection and disease development. Fungicides may need to be applied at regular intervals (every 10 to 14 days is common) depending on the label directions of the products used. Full coverage of all plant surfaces is needed for the best control of target spot.1,2,8,9 2. Many fungicides are registered to control of target spot on tomatoes. Growers should consult regional disease management guides for recommended products.10 Products containing chlorothalonil, mancozeb, and copper oxychloride have been shown to provide good control of target spot in research trials.1,9 The strobilurin fungicides azoxystrobin and pyraclostrobin, the fungicide boscalid, and the systemic acquired resistance (SAR) elicitor acibenzolar-S-methyl have also been shown to provide good control of target spot.4,11 3. The labels of many of the fungicides registered for target spot control indicate that the products should be tank-mixed or alternated with fungicides with different modes of action to prevent the development of fungicide-resistant strains of the target spot pathogen. This is especially important when using strobilurin fungicides because they are at high risk for resistance development. Strains of C. cassiicola that are resistant to strobilurin fungicides have been detected in tomato and other crops.2,4,8 Successful, long-term management of target spot on tomato will require the use of integrated programs that include cultural and chemical management strategies. |
| **Tomato bactorial spot** | 1. Management   Control of bacterial spot relies on: (i) growing healthy plants from seed free from infection, and (ii) care in handling seedlings when transplanting them from nursery to field.  Cultural control is important, as it is difficult to control this disease with chemicals. Not only are the chemicals expensive, but also they are easily washed off leaves and fruits in heavy rain showers that occur frequently in Pacific island countries.   1. CULTURAL CONTROL   Before planting:   * Do not use seed from infected plants; obtain a new source - those sold in commercial packets from reputable companies are most likely to be free from infection. * If farmers want to use their own seed, but avoid seedborne infection, treat seed with hot water at 50°C for 25 minutes, cool and then dry1. But use a thermometer and treat the seed for the correct length of time. * Make tomato nurseries far from tomato fields to prevent infection of seedlings. * Carefully inspect every seedling before taking them to the field; remove and burn any seedlings with leaf spots. * Remove [weeds](https://apps.lucidcentral.org/pppw_v12/text/web_full/entities/weeds.htm) within tomato crops, and at the borders; and remove self-sown tomato plants before planting the crop.   During growth:   * Avoid overhead irrigation in favour of flood, furrow or trickle irrigation; if this is not possible, make sure irrigation is done early in the day so leaves are dry before evening. * Avoid splashing water onto the leaves if hand watering. * Apply a thick mulch around the plants to stop water from splashing bacteria from the soil onto the leaves. * Do not work in the crop when plants are wet, as the disease can be spread on clothes.   After harvest:   * Collect plant debris after final harvest, and burn it. * Do not plant tomatoes continuously: leave 2-3 years between crops on the same land, and do grow pepper or eggplant in the rotation.  1. RESISTANT VARIETIES There are resistant varieties of capsicum. 2. CHEMICAL CONTROL Use copper fungicides, or copper plus mancozeb. It is very important to have healthy seedlings free from bacterial spot, so spraying should start in the nursery, and continue at 7-10 day intervals in the field. Spraying early, when the plants are young, is especially important as in wet, windy weather, sprays alone often fail to give adequate control. |