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NEWS RELEASE

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THE EFFECTS OF WEATHER ON VEGETABLE DISEASE DEVELOPMENT

Although we are currently going through the third year of a major drought in California, many meteorologists are predicting that the coming rainy season will be wetter than normal because of the strong El Nino that is developing in the Eastern Pacific. Although an above average rainy season would be a welcome relief it also can lead to some problems for agriculture in California.

Some problems that be expected with a wet season would be too wet of soils to do field operations such as preparing the ground, planting, and harvesting. However, of concern that may be overlooked by some is the effects of disease development on vegetables in a wet year.

Plant diseases can certainly be expected to be a problem for most vegetables growing during this rainy season. The development of any disease problem is dependent on the interaction of a host, pathogen, and the environment. Most plant pathogens are dependent on moisture for disease development and many "bad disease" years can be due to weather. California's semi-arid climate has reduced the impact of the weather on disease development so that some of the highest yields and quality of fruits and vegetables are produced here.

No one can predict what will occur this year as far as plant disease problems on California's vegetables. However, it would be prudent for everyone in the industry to be aware that a wetter than normal year may bring some problems. Some potential problems to take into consideration would be; seedling diseases, foliar diseases, and root rots.

Seedling diseases are more of a problem in wet and cool soil conditions. The main fungi responsible seedling diseases are Pythium, Rhizoctonia, and Phytophthora species. Seedlings may be killed either before they emerge (pre-emergence damping-off) or after they have emerged (post-emergence damping-off). If the seedlings are not killed then often times the young plants will be

slow to grow. In either case the results are fields with poor stands that need to be replanted or produce low yields. It is best to avoid planting into too wet soils or soils that are compacted. Fields should be worked so that they drain well and plant fields with heavier soils during periods of drier weather. Fungicide seed treatments can also be very useful in reducing seedling diseases.

Foliar disease problems such as downy mildew, gray mold, fungal and bacterial leaf spots, and others will be more likely in a wet year. The El Nino year of 1998 was the first time garlic rust was ever an issue for California growers. Foliar pathogens require periods of leaf wetness to cause infection, damage the plant, and reproduce itself to spread to other plants. During a wet season the pathogens will have better opportunity to cause damage because of the extra rainfall and longer periods of leaf wetness in the canopy due to more cloud cover and lingering moist air. Scouting the fields regularly and timely applications of protectant fungicides will be important control methods for many vegetable crops. The use of resistance varieties and trying to avoid growing too lush of a plant canopy to increase air circulation should also be considered.

Root rots can be minimized before planting by making sure the soil is well tilled and eliminating areas of soil compaction. During the course of the season, tractor work should only be done when the soil is dry enough to avoid soil compaction. These measures will help to insure that the field drains well and reduce the impact of root rotting fungi that are favored by wet soils. Fungicides are available for a few root and stem rot problems.

While a wet year is predicted for this coming year due to a strong El Nino, it would be impossible to predict that it will also be a bad year for California's vegetable industry due to diseases. However, knowing that the environment is one of the three components of disease development, it would be wise to take steps to reduce disease severity knowing that a wet season is likely approaching. Steps such as properly preparing the fields, selecting resistant varieties, reducing canopy density, field scouting, and not extending the interval of protectant fungicides are always good management practices. These steps however are more critical in a year predicted to be wetter than normal.

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