



Dealing with flooded berry fields

Steve Reiners and Marvin Pritts, Department of Horticulture, Cornell University.

Record-breaking rains in eastern New York State have left many berry growers with unmarketable crops. What had been shaping up to be a decent season has quickly turned into a bad situation.

Floods and food safety

There are two types of flooding. The first is more typical and occurs after a heavy downpour when fields become saturated and water pools on the soil surface. This type of flooding can reduce yields and even kill plants but usually will not result in contamination of produce with human pathogens. The second type of flooding is more severe and unfortunately occurred with the recent storm. This occurs due to runoff from stream/river overflows will more likely be contaminated with human pathogens, as well as chemicals. Unless you are absolutely sure that flooding is not from streams and surface water, do not use berries that were covered with flood water.

Plant survival underwater

How long a crop can live once it is flooded and what may be the effect on yield? Berry crops can tolerate a great deal of flooding when they are dormant, but when actively growing in summer, flooding for any length of time can be detrimental. This time of year is particularly bad because plants are preparing to make flower buds for next year, and stress can compromise this process. If plant roots were under water for more than 48 hours, expect next year's crop to be compromised as well.

Plants previously flooded may develop an off-green or yellowish color. These plants are suffering from a complex of nutrient deficiencies, nitrogen, phosphorus, potassium and perhaps others, even though the soil contains adequate amounts. But the main deficient element is oxygen. Plant roots need oxygen to take up nutrients and water to utilize the photosynthate from the tops and to grow. With the heavy rains we have had, soils are saturated; that is, nearly all of the pore space is filled with water, leaving little room for air. Ideally, for good root growth 50 percent of the pore space should be filled with air. As soils drain, air is drawn into the soil, but when it rains, the water forces the air out of the pores. As is obvious to all, what is needed now is several rain-free days so the soils can drain and draw in air to stimulate root growth. Once the plant roots get adequate oxygen they will begin to grow

and take up the nutrients present in the soil. Anything that can be done to remove surface water will be helpful.

Many plant diseases will be much worse following flooding rains (e.g. Phytophthora and Botrytis), so closely monitor crops and manage these diseases. Phytophthora spores are spread under flooded conditions, so chemical treatment may be warranted in susceptible crops (e.g. red raspberries and strawberries).

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