

DRAFT Watermelon Producers Guide to Preparing for and Recovering from Hurricanes in Georgia

This is a draft of guidance being developed by the USDA SE Climate Hub to help watermelon producers prepare for and recover from hurricane damage.

This section will focus on:

- Pre-event steps to minimize loss due to a hurricane in fall watermelon crops.
 - Short term recommendations for reducing loss watermelon crops after a hurricane event.
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I. Pre-Hurricane Planning – Long-term Preparedness

Initial Site Planning

When planning for long-term preparedness the growing site should be evaluated. Specifically, is the site on an elevation (more susceptible to wind damage), near surface water (susceptible to flooding), or near coastal waterways (susceptible to storm surge). It is unlikely that all risks can be avoided. For example, an elevated site may be more open to wind damage, but more protected from rising flood waters. Surface water access may be necessary for an irrigation source. Watermelons in Georgia are grown using both overhead (pivot) and drip irrigation. Due to the risk of plant diseases in surface water sources, most are irrigated using ground water. The negatives of an elevated open site are likely less than those associated with low lying areas susceptible to flooding when planning a site with resilience for hurricanes. When watermelons are subject to standing water, postharvest diseases are unavoidable and can easily destroy an entire crop.

Site Establishment

When establishing a growing site and/or packing facility some initial considerations may be made for increasing resilience to hurricane events. Land should be gently sloping with adequate draining. Steeper slopes should be terraced if possible. If land is elevated and unprotected wind breaks may be appropriate along field edges to help reduce damage from lower category storms.

In previous storms irrigation systems were rendered inoperable due to a lack of electricity. This resulted in high indirect losses due to being unable to irrigate after a storm. Hurricanes typically occur in early fall in S. Georgia, when day temperatures can easily exceed 90 °F. Irrigation is usually required shortly after a storm passes to maintain a crop. Locating irrigation pumps in elevated areas may help with reducing flooding risks to the pump. In addition, having a clear access road to the pump may help with bringing in generators or diesel powered pumps after a storm to facilitate irrigation.

Packing sheds should also be located in somewhat higher ground to prevent flooding. Site preparation for packing facilities may include sloping land away from the shed to allow for drainage and in some cases construction of shallow berms to prevent minor flooding from penetrating a packing facility. Destruction of farm facilities in recent hurricanes have resulted in some of the largest losses

compared to immediate crop damage. In addition, electricity supplying coolers must also be maintained during and after a storm.

Seasonal Considerations Outside of Hurricane Season

- During slow periods of the year ensure that backup generators and supplemental pumps are in good working order.
- Areas of the farm that are prone to flooding may be regraded to improve drainage.

Monthly Considerations During Hurricane Season

During hurricane season additional fuel supplies should be maintained on farm in elevated tanks protected from flooding. This could even be in trailer or truck mounted diesel tanks. Wind damage may be minimized by utilizing annual cover crops near plot edges. Areas between beds of plastic (particularly near the end of rows) could be seeded with low growing cover crops to reduce potential erosion if a storm even occurs.

Additional inventories of fungicides and bactericides should be maintained in the event of storm so that crews can apply them as soon as the storm passes to protect from diseases. It is likely that infrastructure may be significantly damaged; therefore, the farmer should have enough agricultural chemicals on hand to be self-sufficient for at least one to two weeks post-storm.

Annual Considerations

Meet with your crop insurance and/or FSA representative to make sure you are signed up for eligible programs.

- See seasonal considerations (above).

II. Pre-hurricane Planning – Short-term Preparedness

When a Hurricane Is Forecast to Impact Your Area (1 to 7 days before)

- In the week before a forecasted hurricane event be sure to stockpile any chemicals you may need, including sun burn protectant and maintain adequate fuel resources on hand.
- Fungicides for protection against diseases such as *Phytophthora capsici* or Anthracnose (*Colletotrichum orbiculare*) generally need to be applied before the crop comes in contact with a disease. Therefore, it is encouraged to apply fungicide treatments prophylactically prior to a storm to enhance protection.
- In the fields begin moving pivot/lateral irrigation to edges of the field that may be more protected and complete any temporary grading activities to facilitate improved drainage or to protect sheds/buildings from flooding.

- Near sheds cut limbs or remove any low hanging trees that could damage buildings in a storm. Remove greenhouse plastic to prevent damage to structures.
- You should also fill empty and cleaned fertilizer tanks as well as additional tanks with potable water. Some washing lines require potable water and if county/city water is the primary source of water for a packing shed be sure to have water on hand if municipal water is unavailable.
- Shortly before a forecasted storm you should pick ripe fruit and store in coolers and or ship. Even if fruit appears to make it through the storm in the field experience has shown that postharvest disease rates in these fruit greatly increase. Growers have picked fruit in the immediate aftermath of a storm only to have it deteriorate in storage or transit, resulting in additional costs and losses.

One Day Before a Hurricane is Forecast to Impact Your Area

- Disconnect power from buildings that may be flooded.
- Temporarily store machinery at higher elevations and move chemicals to protected areas as well.

III. Post-hurricane Recovery

- In the aftermath of a hurricane take detailed notes of fields damaged with accompanying photographs of each field demonstrating the losses. This may be critically important later on. When inspecting fields determine if a crop has enough fruit remaining to save or to be terminated at this point.
- Because watermelons are generally lying on the ground, growers must check to make sure that fruit is not submerged in flood waters. For food-safety purposes any fruit submerged in flood water (not standing rain water) must not be harvested.
- Watermelon fruit are very susceptible to rots, particularly *Phytophthora* fruit in the aftermath of heavy rains. Fungicide sprays for protection against fruit rots and other diseases must resume immediately after a hurricane. Fall watermelon production is generally discouraged due to high disease pressure in Georgia. Hurricane events greatly exacerbate the likelihood of catastrophic disease losses. Even with fungicide sprays losses may not be avoided.
- Growers should also plan to spray a sun-burn protectant after a hurricane. It is likely that there is significant foliar damage, which can lead to sun scaled of unprotected fruit.
- Growers need to be vigilant if harvesting fruit shortly after a hurricane event. They may want to store fruit for several days before shipping to determine if fruit rots are present. Diseases such

as *Phytophthora* blight can rapidly spread during storage, causing entire loads of fruit to be rejected.

Within a Week Following Hurricane Impacts

Due to the high fall temperatures likely to be encountered make sure irrigation is functioning. While excess floodwaters (those not contacting fruit) need to be drained from fields within 2-3 days or plant roots will be subjected to anaerobic conditions and will die; flooding, recently storms have resulted in far more wind damage than flood damage in southern Georgia.

Within a Month Following Hurricane Impacts

- Visit with crop loss adjusters, structural insurance adjusters, and your local Extension Service to make sure losses are documented.
- Regularly scheduled pesticide applications can be resumed.

This draft guidance was developed by subject matter experts from the University of Georgia

Draft



A watermelon field in the fall completely devastated by gummy stem blight (*Didymella bryoniae*) following a significant rain event. This field was a 100% loss with no fruit harvested.



A watermelon field completely defoliated due to disease. Watermelons were sunburned prior to ripening resulting in 100% loss.