



Freeze Damage in Peanuts

Peanut harvest is in full-swing across the state and the crop looks to be very good. Peanut harvest means fall weather, signaling cooler temperatures and that makes growers and buying point operators a little nervous. So far this fall we've been in a weather pattern with cold fronts passing across Texas with some regularity, and some of these have been moderately-strong for the month of October. This type of weather fosters lots of coffee-shop talk – some right and some wrong.

This time of year, windrowed peanuts may be exposed to temperatures at or below freezing. These recently dug peanuts have a high moisture content. During this time period of high moisture, if the peanuts are exposed to cold nighttime temperatures and warmer temperatures during the day then potential kernel damage can occur. However, several factors are involved in the process — kernel moisture content, actual air temperature, the exposure time, and the subsequent warming during the daytime. These factors all interact and contribute to potential freeze damage. Because there are several factors involved, it is rather difficult to make predictions regarding the presence or absence of freeze damage in peanuts.

The indeterminate flowering habit of the peanut predisposes it to having kernels of differing maturity and size. Younger, immature kernels have higher moisture content and because of their lack of development are susceptible to more damage. What is the actual damage? When exposed to the cold temperatures, res-

piration in the seed changes from an aerobic (with oxygen) to an anaerobic (without oxygen) process. When this happens, increased concentrations of several volatile compounds such as ethanol and acetaldehyde are found and cells leak organic and inorganic materials. This results in the development of an off-flavor described as fruity fermented. The smaller kernels (number 1's) are much more susceptible to injury than medium or jumbo size kernels.

What can be done to prevent freeze damage? Peanuts that have not been dug are much safer from light freezes or frost than those that have been dug. The soil provides insulation for the underground peanuts from air temperatures 3 to 5 degrees below freezing. Keep in mind that once the vines start to deteriorate, so does peg attachment, so it's imperative that the peanuts get dug promptly after the threat of freezing temperatures has passed. Also, the sandwich digger, which has been used to a limited extent offers some protection from cold temperatures.

The bottom line is this, the lower the kernel moisture content and the more mature the kernel, the lesser the risk of freeze damage to occur. A good web site for weather forecasts is the National Weather Service's Southern Region Office. The website is www.srh.noaa.gov Good harvesting!

*Robert Lemon
Associate Professor and
Extension Agronomist*

*351 Soil & Crop Sciences
Texas A&M University
College Station, Texas
77843-2474*

*(409 862-4162
FAX: (409) 845-0604*

*e-mail:
r-lemon@tamu.edu*

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