

PUMPKIN AND WINTER SQUASH HARVEST AND STORAGE

Winter squash and sugar pumpkin harvest is well underway. In many fields, full-sized pumpkins have matured and are ready for harvest. Fruit may need to be held for several weeks before it can be marketed. There can be extra work involved in bringing fruit in early, especially for growers who normally have pick-your-own harvest, but we recommend that growers harvest as soon as crops are mature and store under proper conditions, if it is feasible. With the bouts of heat and intense sun of the past few weeks, sunscald may be a problem in some varieties of winter squash. At the same time, nights below 50 contribute to chilling injury of winter squash.

Attention To Curing And Handling will go a long way toward improving the life of winter squash and pumpkin fruit. In fields where pumpkins are turning orange, it is worthwhile to cut and windrow the pumpkins and bring them in out of the field. This will allow the handles to cure and will protect fruit from insects, vertebrate pests, and diseases. Pumpkins are not marketable if the handle is broken off or dried up. If you need to leave pumpkins in field for pick-your-own, cut the handles from the vine to save them from advancing **powdery mildew** and reduce shrinkage.

Curing Pumpkins: As long as pumpkins are starting to turn color, they will ripen off the vine. If necessary, pumpkins can be ripened in a well-ventilated barn or greenhouse. The best temperatures for ripening are in the seventies or even low eighties during the day. Night temperatures should not drop below the sixties. In a greenhouse, temperature can be managed with ventilation on sunny days. Unless it is quite cool, heat is not likely to be needed if the house is closed up at night.

Holding In The Field: Often it is not feasible to harvest pumpkins early and store them until they can be marketed, and so they must be 'stored' in the field. If vines are healthy, storage in the field can be successful for a few weeks. If the vines die back, damage to the fruit from sun and insects is more likely. In any case, it is important to scout for insects feeding on the fruit, which may include **squash bug nymphs** or **adults**, or **striped cucumber beetle**. Control them if damage is evident. In fields that have a history of **Phytophthora blight**, **Fusarium fruit rot**, or **black rot**, field storage may increase the incidence of these problems, particularly if we have a period of wet weather or a major storm. This has been one of the causes of significant losses in recent years, and one reason that we recommend bringing fruit in as soon as it is mature.

Winter Squash Harvest: Fruit that are free from disease and haven't been subject to much chilling (below 50° F) should be selected for long-term storage. Sorting fruit in this manner requires extra labor and may not be economical, but it should not be too difficult to separate bins of squash according to good and poor fields or areas of fields. Fruit from fields where Phytophthora is present are not the best choice for storage.

Storage life depends on the condition of the crop when it comes in and your ability to provide careful handling and a proper storage environment. All fruit placed in storage should be free of disease, decay,

insects, and unhealed wounds. When harvesting squash and pumpkins, it is important to handle the fruit with care to avoid bruising or cutting the skin. Despite its tough appearance, squash and pumpkin fruit are easily damaged. The rind is the fruit's only source of protection. Once that rind is bruised or punctured, decay organisms will invade and quickly break it down. Place fruit gently in containers, on pallets or in pallet boxes.

Curing Winter Squash: A period of curing is important for extended storage life. This may be done in windrows in the field - especially with a series of warm, dry days - or by placing squash in a warm dry atmosphere (70-80° F) such as a greenhouse for up to two weeks. This pre-storage treatment permits rapid drying of the outer cell layers, and when combined with a dry atmosphere for storage inhibits infections that can take place at this time. Removal of the stem from squash (butternut, Hubbard, etc.) will also decrease the amount of fruit spoilage because the stems frequently puncture adjacent fruit, facilitating infection. Furthermore, any clean cuts during the curing period often heal over and are no longer a source for injury or infection.

Chilling Injury: Take care to avoid subjecting squash to chilling injury. Chilling hours accumulate when squash is exposed to temperatures below 50° F in the field and in storage. Injury increases as temperature decreases and/or length of chilling time increases. Chilling injury is of particular concern with squash intended for storage because it increases the likelihood of breakdown.

After Curing: Move squash or pumpkins to a dry, well-ventilated storage area. Pressure bruises can also reduce storage life, so avoid rough handling, tight packing, or piling fruit too high. Fruit temperature should be kept as close to the temperature of the air as possible to avoid condensation, which can lead to rot. Ideally, the storage environment should be kept at 55° F with a relative humidity of 50-70%. Anne Carter's studies of stored butternut squash found that 55 to 60 degrees improved storage life. Low relative humidity increases water loss, resulting in reduced weight, and if excessive, shriveling of fruit. High relative humidity provides a favorable environment for fungal and bacterial decay organisms. Under the right conditions, disease-free pumpkins or butternut squash fruit should have a storage life of 8-12 weeks or more. Even if it is difficult to provide the ideal conditions, storage in a shady, dry location, with fruit off the ground or the floor, is preferable to leaving fruit out in the field.

--John Howell, R. Hazzard; with information from Liz Maynard of Purdue Univesrity