

## How Do I Know When Winter Squash are Mature?

Here is the follow-up to last week's "Is my winter squash ready" podcast. It's getting to that time of year when squash vines start looking a little rough and it's hard to tell if the crop that is on them is ready or not.

First, just because vines are going down does not mean the crop is mature – it could mean that the plant has succumbed to a disease or environmental factor etc. In the last couple of weeks, I have seen many bacterial issues including Angular leaf spot in many different vine crops. Typically, immature winter squash will not store well and flavors may not be optimal. If the vines are dead then the best thing to do is to harvest the squash if it is reasonably mature with reasonably good flavor. Leaving it in the field without living vines/leaves will not help them mature and in fact will probably result in more fruit loss - especially those whose rinds are dark in color like buttercup/kabocha, acorn which are much more prone to sun scalding issues.

Fruit may become infected by soil dwelling pathogens like *Phytophthora capcisi* or *Fusarium*, especially during rain events. As vines go down Striped cucumber beetles and squash bugs will start directly feeding on fruit causing scarring damage but also opening up entry points for diseases. And not that you would think it today, but temperatures below 50 F cause chilling injury in many of these winter squash and reduce the storage potential and eating quality.

**So how do you tell?** Many of the dark skinned cultivars will have a nice dark orange spot of color on the side touching the soil surface including hubbard, acorn and kabocha/buttercup types. Sweet dumpling and Delicata will also have that orange coloring on the bottom. Even the hybrid orange hubbards will have a different color on the bottom when mature. Butternut type will usually turn slightly darker tan, that is duller in color and will have a hard rind when they are mature that is difficult to penetrate with your thumbnail. For me, I also look to see if the green stripes that you normally see when it is younger have completely either faded or are hardly there.

I just wanted to spend a minute on spaghetti squash – it is really important to handle this squash as gently as possible. Between these, buttercup and delicata, they are the notorious for not holding up. Part of that reason I think is because spaghetti squash is quite susceptible to blackrot issues (the fruit phase of the Gummy stem blight pathogen that produced those brown to tan colored rings that eventually turn grayish black you see soon after storage and sometimes in the field). I feel that rough handling and bruising of this squash tends to result in higher levels of this disorder in storage. I also think we wait too late to harvest, so get out there and check to see if it has turned a nice yellowy tan color – if it has, get it out of the field, cured and into storage.

Pumpkins are a little bit different, but from what I have seen and been taught, pumpkins are mature when the handles are stiff. I know this does not sound like anything scientific, but I learned this from a cucurbit breeder long ago and over the years, it has seemed to make sense. In-mature fruit will tend to have handles that seem a little bit "wobbly" compared to one that is mature and un-wobbly. This method however usually works best on fields that have had a good fungicide program and do not have a lot of disease in them already.

Tips on harvesting and storing squash: These things are nothing new and really should be followed for all crops – including pumpkins!

- Handle squash as gently as possible to avoid bruising or cutting the skin. Wounds will allow soft rot bacteria and other disease to invade and reduce the storage life of your squash.
- As hard as it might be as the faster you move the more you pick up, instruct your help to “gently” place the squash in the bins/baskets. Do not throw or drop them in or if using buckets, just drop the buckets from the top of the bin! It only adds to the bruising and wounding that leads to more breakdown and lost storage potential!
- Avoid picking up squash that is wet with dews or recent rain. This increases the risk of pressure bruise and breakdown.
- If possible, try curing your squash to encourage cuts or bruises to heal over. Place in windrows in the field (this also allows the stem ooze to dry up) especially if the weather is going to be warm and dry for several days. However, this might be more difficult to do this early in the season, especially with upper 80’s and lower 90’s forecasted for this week. They can also be placed in a warm, dry atmosphere (70-80°F) with good air movement such as a well ventilated barn or shed if temperatures can be maintained. Greenhouses or high tunnels with fans turned on and shade cloths would work nicely.
- Many growers will remove the stem especially from butternut and acorn. This practice helps reduce puncturing that can happen in the bins but squash should definitely be cured for up to a week before going into storage.
- Be sure not to pile squash too high in the bins especially if they will be stacked on top of one another. Pressure bruise is another way to decrease squash quality and storage potential.
- **After curing, move squash or pumpkins to a dry, well ventilated, warm storage area.** Store squash at **55-60°F** with a relative humidity of **50-70%**. If humidity levels are lower than that, moisture is removed from the fruit resulting in “pithiness” or shriveling. Humidity higher than that results in conditions that favor decay organisms. Avoid chilling injury by avoiding exposing squash to temperatures below 50°F in the field or in storage.
- Lower temperatures in the storage slowly so not to produce condensation on the fruit.
- And I know I sound like a broken record but one of my biggest pet peeves (yes, I have a few) is seeing bins and baskets of beautiful produce loaded on farm trucks or wagons and watching them bounced and jounced all over the place as the driver drives way to fast on farm roads! All of this movement can cause additional more bruising and wounding.