

The Tuber Times

Potato Growing Tips and News from the World of Research

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Potato Harvest and Curing Tips

prepared by Matt Kleinhenz

Proper harvest and curing are critical to benefitting from the work and costs associated with producing a potato crop. Crops that are not harvested and cured properly leave the grower with less return and a lot of headaches. For quick reference, keep in mind the following points when harvesting and curing the crop.

1. Vine Killing is the First Step in Harvest Management

Proper vine killing is important to maintaining crop quality and facilitating harvest. In the past, deliberately killing potato vines was rarely necessary – weather conditions and/or diseases and insects took plants down. More recently, with the emphasis on maintaining crop vigor for as long as possible in order to increase yield, killing vines to prepare for harvest has become routine. Vines are killed mechanically, chemically, or with a combination of both means. In any case, it is important to keep in mind that *proper skin set may require up to three weeks after vine killing*. Factors that tend to lengthen the period between vine killing and adequate skin set are: high crop vigor, large vines, late maturity, high soil moisture, and cool or cloudy weather. Also, *very rapid vine death may reduce crop quality*. Killing vines rapidly may discolor the tuber's vascular ring, especially at the stem end of the potato. Such discoloration reduces the crop's attractiveness to any market. Applying chemical vine killers when soil moisture is low and air temperatures are high tends to worsen vascular discoloration problems. The same is also true of quick-acting vine killers. Chemical vine killing is most successful when:

A. Chemical vine killers are **not** applied when soil moisture is low or conditions are cool, damp, or very hot.

B. Chemical vine killers are applied in split applications. If the label permits, apply less than the

full recommended rate and follow with a second application at a lower rate several days later.

C. Vines are rolled before spraying and/or between sprays if split applications are used. Rolling may also close cracks and reduce greening. But, rolling may also contribute to soil compaction.

D. Recommended spray adjuvants are used.

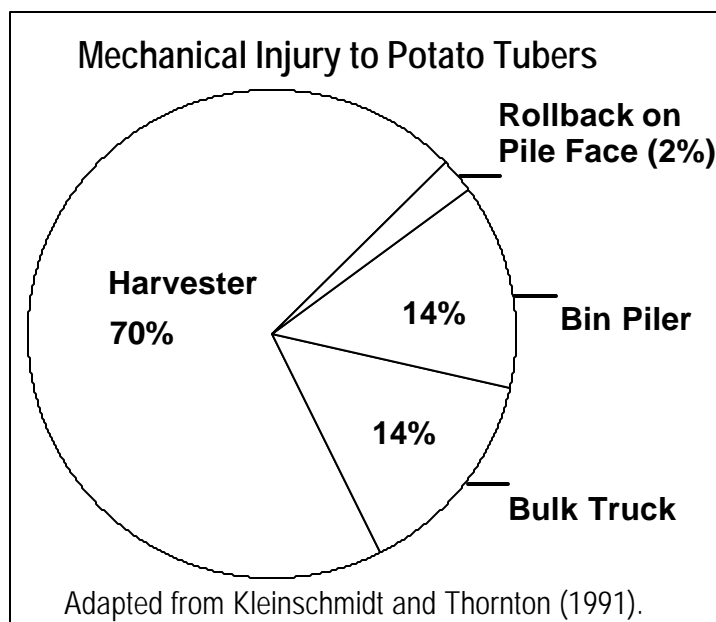
Vines may also be killed mechanically. Flail beaters/choppers essentially chop and redistribute vines while rollers snap and leave vines in place. Take care to disrupt the soil as little as possible when using a flail chopper.

2. Beauty and Insurance are Skin Deep

An intact, blemish-free skin is important to overall potato crop quality. Consumers and produce buyers routinely reject potatoes showing even minor skin imperfections. Anyone who has tried to market a crop of red-skinned potatoes that was harvested before the skin had set or that was handled roughly -- and then developed brown pox on the surface -- recognizes the importance of skin quality. An intact skin also helps prevent against crop breakdown in storage. The skin of the potato is the first line of defense against organisms well prepared to destroy tubers if given access to the tuber's flesh. Harvesting potatoes with an immature skin or rough handling creates scores of wounds on each potato, each of them a potential entry point for naturally-occurring organisms such as *Erwinia* bacteria and various fungal pathogens. Wounded potatoes may go into storage and in a short time become an unmarketable mess more easily moved with a high pressure hose than a front-end loader. Proper skin set is important.

3. Handle with Care

The PAA Handbook reports that growers may lose 20% of their income through potato injury at harvest. Bruising, along with skinning and wounding lowers market price, promotes shrink in storage (through greater respiration, decay, and water loss), and increases processing and handling costs. As shown in the adjacent figure, mechanical injury to potatoes occurs at all stages of harvest and handling but the majority of damage occurs on the harvester. To limit tuber damage during harvest, *check and repair equipment, including harvesters, windrowers, trucks and bin pilers.*



Eliminate exposed elements that will damage tubers and make sure pads are not worn. *Pay attention to local recommendations.* Harvest do's and don'ts which reflect particular local conditions are available in most potato producing areas. Harvest techniques must be in line with the combination of varieties,

general soil conditions (e.g., temperature, type), field slope, and other factors typical in your area. Also, it may be advisable to *slow down*. With uncertain weather and other concerns, harvesting tends to proceed quickly. Keep harvester and windrower ground speed at a rate that creates a steady volume of potatoes moving through the equipment. Belts and conveyors must also be adjusted to help with this. Finally, *use proper bin piling techniques* – for example, minimize drop distances and use padding (especially when beginning a pile or near baffles).

4. Cure the Crop

Even the best handled crops suffer some cuts, wounds, and other damage during harvest, transport, and bin piling. As mentioned above, injuries create infection points, increase respiration (changing tuber chemistry, an important issue, especially for processing crops), and speed moisture loss. If you think of potatoes as little more than fancy ways to package water, this last point is important as even small declines in tuber moisture can translate into large losses at pack-out or shipping (e.g., a 2% moisture loss on fifty thousand cwt going into storage is one thousand less cwt to sell). Proper storage conditions help potatoes complete built-in curing processes that are the growers best friend at this stage. Proper curing conditions include: moderate temperatures (55-60 EF), high relative humidity (90% or greater), and aggressive ventilation (fresh air daily for at least 2-3 weeks).

In summary, the “New Brunswick, Canada, Grower’s Guide to Potato Storage” lists six steps to successful storage management: 1) put the best possible potatoes into storage, 2) put the potatoes into the best possible storage, 3) cure potatoes properly, 4) cool potatoes slowly, 5) maintain pile temperature precisely, and 6) warm the pile before handling. Proper conditions for the middle and later stages of storage will be discussed in the next issue of this newsletter.

Research News

Research on potato bruising has obvious benefits to the industry. Recently, Dr. Gary Hyde and coworkers at Washington State University have addressed an important problem related to bruising research and, more important to the industry, tuber handling to reduce bruising. As the authors point out, all bruises are not the same and knowing how they differ will help growers and processors develop ways to reduce bruising. The research team has developed a system by which to classify impact-related defects in tubers, a critical part of research aimed at reducing the problem. The system is not for research only as it may be possible for growers and processors to use it to assess tuber condition. With this system, says Dr. Hyde, growers and processors can find out the condition of their crop before or during harvest. And, armed with this information, they can take appropriate steps to minimize bruising-related losses.

Selected References for More Information

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Previous Issues of this Newsletter:

Early to Mid-Season Potato Cultural and Nutrient Management Tips, May 2001 (vol. 2 issue 1)
Potato Storage Management Tips, November 2000 (vol. 1 issue 2)
Factors to Consider when Sidedressing, June 2000 (vol. 1 issue 1)

For more information on this newsletter or its contents, please contact:

Dr. Matt Kleinhenz
Asst. Professor and Extension Vegetable Specialist
Department of Horticulture and Crop Science
The OSU-OARDC
1680 Madison Avenue
Wooster, OH 44691-4096

phone: 330.263.3810
FAX: 330.263.3887
Email: kleinhenz.1@osu.edu

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