

This article summarizes key points presented during the CWQE High Tunnels and Stormwater Management Workshop held on March 10, 2022. The workshop presented the following topics and discussion.

## OVERVIEW OF HIGH TUNNELS

**Jeff Stoltzfus, Penn State Extension Educator**

- **What's the impact of more high tunnels on the community?**
  - High tunnels extend our growing season – from a grower's perspective, that means you're making more money over a longer period; from a consumer's standpoint, that means you're eating local produce longer.
  - Extended growing season enhances food security – an issue of significance given today's climate changes and pandemic's supply chain issues.
  - Animal numbers are down in certain areas of the state; produce numbers are up. High tunnels offer an opportunity for small farms to stay profitable.
- Tomatoes have proven to be the most valuable crop to raise in high tunnels, per square foot.
- Some farmers rotate their high tunnels every year; some every 5 years. (National Organic Program uses a 5-year rotation standard.)
- **What are the issues related to stormwater management?**
  - Rotating high tunnels can be a challenge if required to use conventional stormwater management measures such as stone trenches.
  - Regulations look at high tunnels like a building – they are impervious to the extent that the plastic covering is impervious; however, there are other distinctions:
    - there is no excavation or impaction of the soil during construction of high tunnels.
    - There's no footer. Rain water running off of the cover actually infiltrates into the inside of the high tunnel walls.
    - It's a temporary structure on the landscape. The land can be cropped after a high tunnel removal – stone trenches would be in the way.
  - High tunnels should be treated as a field practice. Typical NRCS soil runoff practices should be applied.
  - If there's a slope, there could be erosion potential. Grassy areas or swales around the high tunnel walls are often enough to manage the stormwater runoff.

## STATE LAW AND HIGH TUNNEL OPERATIONS

**Brook Duer, Attorney, Center for Agricultural and Shale Law, Penn State Law**

- For purposes of Act 15 of 2018, a high tunnel is legally defined as a structure that:

- 1) Is used for the production, processing, keeping, storing, sale or shelter of an agricultural commodity, or for the storage of agricultural equipment or supplies; **and**
  - 2) (i) Has a metal, wood or plastic frame; and (ii) when covered, has a plastic, woven textile or other flexible covering; and (iii) has a floor made of soil, crushed stone, matting, pavers or a floating concrete slab.
- Not all high tunnels are exempt from the stormwater management plan requirement. Your high tunnel is exempt if:
    - 1) The impervious surface is less than or equal to 25% of ALL structures on your total contiguous land area; AND
    - 2) It meets one of these 3 conditions:
      - a. On slopes  $\leq$  7 percent, it's 35 feet from a watercourse, public road, or property line;
      - b. On slopes  $>$  7 percent, it's 100 feet from a watercourse, public road, or property line;
      - c. It has a buffer/diversion system that does not directly drain into a stream or other watercourse by managing runoff in a manner that meets Storm Water Management Act requirements.
  - Under Act 159 of 2014, language was added to the Uniform Construction Code (UCC) definition of agricultural buildings to include structures that produce agricultural or horticultural products. If a local ordinance does not have its own building code, the UCC would apply to a local situation.
  - **How does the ACRE law apply to high tunnels?**
    - ACRE – the Agriculture, Communities and Rural Environment – is a state law (Act 38) that provides a process whereby the Attorney General (AG) office reviews cases made by landowners who claim that their township is limiting their ability to pursue normal agricultural operations. If a decision is made by the AG that the township is unreasonably restricting an activity, the local ordinance can be rendered invalidated (as written or applied) through the state court system.
    - An unauthorized local ordinance does either of the following:
      1. Prohibits or limits a normal agricultural operation unless the local government unit has authority.
      2. Restricts or limits the ownership structure of a normal agricultural operation.
    - The AG website includes a database of all past ACRE case decisions (since 2017). Visit [ACRE – Agriculture, Communities and Rural Environment – PA Office of Attorney General](#).
    - A producer submits a written request to the AG office for review of a local ordinance. The AG has 120 days to determine whether to accept the case.

## HISTORY OF ACT 15 OF 2018

### State Representative David Zimmerman, Lancaster County, 99<sup>th</sup> Legislative District

- High tunnels were first exempted from county property taxes. In 2018, the PA Stormwater Management Act was amended to exempt high tunnels from stormwater management plan requirements (as described above).

- With the decline in the dairy industry, many small farms have turned to vegetable production, especially in northeastern Lancaster County.
- Initial intent was to include all impervious cover in the 25% limit for exemption (including driveways, parking ,etc.); the law only includes up to 25% of all structures.
- It is important that all agencies work together to discuss issues with the current state law. Suggestions for amendments to Act 15 of 2018 are welcome. Individuals are encouraged to send suggested changes to CWQE.

## HIGH TUNNELS, DRAINAGE AND STORMWATER MANAGEMENT

### Sally Holbert, RLA – Center for Water Quality Excellence/Land Logics Group

- On a farm, stone-filled trenches are most likely not appropriate for ag high tunnels. Can create issues with rotation of high tunnels.
- A covered, 96 x 30-foot high tunnel generates 1,795 gallons of water after a one-inch rain event. That is a considerable amount of water that should be considered when you site your high tunnel so that you don't lose your soil resource. Keep them on slopes under 7 percent slope.
- The stormwater exemption is about not having to submit detailed plans and do stormwater modeling. It is still important to pay attention to controlling stormwater runoff.
- What's applicable to urban stormwater management design does not necessarily apply to agriculture. Look at a site holistically – look at the entire property; look upstream and downstream. Are there opportunities to manage the water that sheds off the high tunnel? The important thing is you don't want to concentrate the runoff.
- Consider a series of smaller stormwater management practices called a treatment train.
- Low impact stormwater alternatives:
  - Riparian buffers – look for opportunities to plant buffers particularly downhill of a high tunnel. In MS4 communities, farms can be sites to help municipalities meet their stormwater permit requirements; consider alternative crops such as plants for floral trade
  - Swales and berms on a contour – helps to keep water on your property
  - Cover cropping between tunnels
  - Consider creating forest stewardship plans as part of holistic approach to property management. Tree canopies can be significant when controlling runoff.
- Site analysis: can be easy to do stormwater calculations

## PANEL DISCUSSION

During the panel discussion, the following key issues were raised for further consideration:

- Revisions to the current definition of high tunnel. Is there potential for a new definition for *temporary* agricultural high tunnel.
- Addressing percentage of existing impervious surface – what should be included?
- Changes to the UCC as it relates to high tunnels.
- Recognition of low impact stormwater runoff management practices for high tunnels.