

SOILS

Novel hoop house design offers easier equipment access

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“Necessity is the mother of invention.” This has certainly been the case when it comes to high tunnel hoop house design and function. Over

the years, innovative growers and fabricators have come up with creative solutions to improve venting, anchorage, mobility, strength and shape of high tunnel hoop house structures.

One necessity for growers using tillage and bedding equipment in permanent structures is the ability to pass equipment freely through the structure. While most high tunnel hoop house structures in use today are clear span, which offers unobstructed movement inside the structure, the majority of end walls coupled with these structures do not permit unobstructed movement by equipment in and out of the structure.

Several years ago in an effort to address this accessibility problem, I asked Leon Sloan (of Leon’s Greenhouses in Kingston, Oklahoma) to design an end wall that would allow us to pass freely through our research houses using our bedder/mulch-laying equipment. This would



eliminate the need to back up while positioning the equipment inside the structure. Leon responded by designing a detachable end wall that mates with the end hoop. This end wall uses four bolts to secure it to the structure. While effective, this particular detachable design requires two or more people to remove and reattach the end wall with each use of equipment.

During 2014, in preparation for an educational program, I was searching the Internet for novel end

wall designs and came across an end wall designed by Tunnel Vision Hoops. In this “clamshell” design, the end wall and door are essentially one and the same. The genius of this design is that, in addition to providing unobstructed access, it creates additional growing space at each end of the house when the end wall is in the closed position. The only downside of this design is it must be equipped with a separate side door for people access due to the impracticality of opening and closing the ▶

end wall each time the structure is entered and exited.

In early 2015, I received a call from Sloan requesting I check out his new end wall design at his business location in Kingston. What I witnessed was an improved version of the clamshell end wall. Leon had never heard of Tunnel Vision Hoops and was not aware of their clamshell end wall. Leon had simply responded to a grower's request for an end wall that would allow unobstructed equipment access by designing an end wall that I often refer to as a "clamshell on steroids."

The Sloan clamshell end wall consists of a series of hoops that swivel at the base enabling the end wall to open and close. The base of the hoops are attached to a track by means of bolts. Each track is attached at one end to a corner of the structure and anchored to the ground with a ground post.

On large (wide) structures, a winch is required to operate the end wall. On smaller structures, the end walls can be opened and closed by hand.

Screw "trailer house" anchors equipped with chains attached to the end wall when closed are used to prevent the end wall from blowing open during windy conditions. Chains attached to the structure can also be used to lock the end wall into the desired open position. When opened a few feet above ground level, the clamshell continues to serve as a rain shelter for crops planted under the end wall while enabling ventilation.

For extra strength, large clamshell end walls come equipped with swivel braces. One brace is used for each hoop component of the end wall. The track to which the braces are mounted is identical to tracks the hoops are mounted in, which

allows the braces to move in concert with each hoop component. As with the other tracks, the brace track is anchored to the ground using ground posts. To prevent damage to the braces when equipment is in use, the braces can be removed when the end wall is fully opened.

Sloan's version of the clamshell end wall has only been operational for about a year. No doubt he will continue to offer upgrades as the design is tweaked. With this being said, early reviews by growers using the clamshell end wall are encouraging.

Growers interested in learning more about the "clamshell end wall on steroids" can contact Leon Sloan at 580-564-5909.

Necessity truly is the mother of invention. Just ask Leon Sloan! ■