

7/31/2017

## Appropriate Appropriations

*John Friel*



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There's high-tech and there's low-tech. Somewhere in between, informed by both, is appropriate tech.

What's right for mega-growers doesn't fit mom & pop nurseries. Equipment investments perfect for mid-size growers aren't worth considering for the big guys and vice-versa.

And so on. Let's visit a few places where ingenuity and technology intersect.

**PRODUCT MOVEMENT:** I cut my teeth in this industry with a company whose MO involved retrofitting old, neglected greenhouses. We retrained erstwhile carnation and rose ranges to propagate annuals and

perennials.

Those retrofits were complicated by lousy floors: rough, patchy concrete or muddy gravel. If you've only experienced smooth concrete where products and machines roll effortlessly, you'd be aghast at how cuts once moved from hothouse to cooler.

The solution? Look up. A greenhouse that can handle a snow load can probably support a hanging monorail system. No more assembling a human chain; one or two employees can now move hundreds of trays.

**BENCHING:** The liners on those carts were plucked from a counterintuitive benchtop: Livestock fencing, heavy-gauge galvanized grid panels. Designed for vertical use, it's a great greenhouse asset when horizontal. Laid one way, trays slide easily across it; flipped over, along it.

The default low-budget greenhouse benching used to be snow fence. It did the job, but not well. It's weak and prone to breakage, rendering parts of your bench unusable—parts guaranteed to be inaccessible, so you grow on wavy/saggy/gappy benchtops.

**ROOT ZONE HEATING:** Warming your medium pulls roots out of seedlings or cuttings, while keeping the air

cool for energy savings and stockier plants. The classic brand was a hybrid: Tubing developed to carry airplane fuel, moving water heated rapidly by burners designed for hotels, where demand peaks when everybody showers in a one-hour window. Such systems can cover acres. For a few trays, there are electric mats—cheap to buy, pricey to operate. In between are modified household on-demand systems, gas or electric, coupled with pumps and tubes.

**COOLERS:** Big bulb suppliers build chilled warehouses that swallow trucks. Indie cut-flower growers build insulated sheds and cool them with modified window/wall AC units.

**ROLLING BENCHES:** These range from top-dollar robotic versions down to homemade wood frames riding old rusty pipe. Properly used, they turn empty aisles into growing space. Improperly designed or carelessly loaded, they can dump a whole crop like an overbalanced garden center cart.

**ROLLING GREENHOUSES:** Yes, greenhouses. I've seen only two. One was a metal-and-glass house on rails fit for small locomotives. The other was a homemade poly tunnel, pulled along greased two-by-fours by a lawn tractor. Both warmed the ground to force bulbs sequentially for cut flowers and both worked.

**PLUG EXTRACTORS:** Megagrower version: video-controlled pneumatics blowing out voids to be replaced robotically. No-tech alternative: Fingers. In between: homemade nail-studded planks and lever-operated poppers.

**DELIVERY VEHICLES:** At one end is the F-150 with plywood shelving under a camper cap. At the other is the reefer-equipped 18-wheeler stuffed with rolling cages. In between is the go-anywhere 24-footer with power tailgate, allowing dropoff at any retailer, dock or no dock.

I'm perpetually impressed by green-industry ingenuity. The engineering employed by our mega-growers would play well in any arena. But practitioners with shallower pockets are often dazzlingly inventive.

Before you say, "Aw, c'mon. This ain't rocket science," remember: Apollo 13, the moonshot gone wrong, was saved with duct tape and cardboard. Anyone who's nursed a compromised greenhouse full of seedlings through a blizzard can relate. NASA saved three lives? You've probably rescued thousands. **GP**

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