

Modernized Horse-Drawn Equipment

By Jim Ruen, Contributing Editor

Horse-drawn implements are no longer just refurbished, restored or copies of antique equipment. New products are exploding onto the market as demand grows in the U.S. and across the globe.

"Since 1995 we have seen astounding and unique advances in Europe, where materials, engineering principles and manufacturing realities have freed the inventors to be most imaginative," says Lynn Miller, Small Farmers Journal. "Europe is ahead of North America, but the work of Amish businesses and manufacturers like Pioneer Implement, White Horse Machine, and I & J is rapidly catching up."

For the past 45 years as a magazine and book editor, Miller has championed the use of draft horses by farmers and ranchers and the equipment they use. He has an even longer history as a practitioner of the art and science of horse power on his Oregon farm. Both have given him a great appreciation for companies specializing in the equipment, but also for the individual craftsman.

"Shade tree mechanics throughout the so called undeveloped universe have made fantastic appropriate-tech advances that, while seeming minuscule and less attractive to a historical narrative, have had valued impact on the actual production of food," says Miller.

Early 20th century tractor-powered implements were based on 19th century draft animal implements. Today, innovative horse-drawn farm equipment is being modified and adapted once more.

"Within certain circles (e.g., viticulture, market gardening, silviculture, etc.) the scale and applicability of horse-drawn implement designs lend themselves to being drawn with ATV's," says Miller.

Miller largely credits the Amish community for preserving animal drawn technologies in North America. He points to his own publication and others, such as Draft Horse Journal, encouraging that preservation and also promoting draft horse use to others. He notes that Europe has no such cultural influence.

"Europeans had to play catch up and they have done so with a vengeance," says Miller. "Because of our work to get information out, these cultural arenas are affecting one another in beneficial ways. The attention to detail of European efforts - Schaff mat Päerd (Work with Horses) - has not been matched stateside, with the notable exception of the writings and test work of Eric and Anne Nordell of Pennsylvania."

Paul Schmit, Schaff mat Päerd (SmP), has been the source of numerous new horse-drawn implements presented in FARM SHOW magazine in recent years.

"We just finished testing a weed harrow developed for maintaining gravel paths," explains Schmit. "We call it Kombi-Eig, which means combination harrow. We plan to also fit it with other tines and shares for weed control or cultivating in gardens."

For a list of worldwide manufacturers of horse-drawn equipment, visit www.equidpower.org/manufacturers.

Contact: FARM SHOW Followup, Small Farmer's Journal, P.O. Box 1627, Sisters, Ore. 97759 (ph 541 549-2064; toll free 800 876-2893; www.smallfarmersjournal.com).



Brevetto Furtuna Rake

Side delivery rake made by Repossi and adapted for single-horse use by SmP. Features include reversible bevel transmission gear in oil bath and 5 bars, each with 13 double tines and 80 to 90 rotations per minute.

(www.repossi.it)



Pioneer Logging Cart

The Logging Cart arch handles up to 34-in. logs that lift off the ground as the cart moves forward. The drawbar handles leverage the log chain taut. A spring-loaded latch system locks the chain in place, and a hands-free, foot pedal releases it. Options include a fiberglass-lined chainsaw scabbard.

(www.pioneerfarmequipment.com)



SmP Harness

Part of an ongoing research project at SmP, harness features include a bitless bridle for improved breathing and reduced potential mouth problems. Rigid front traces free shoulder movement and don't constrict the shoulders during the pull. A 3-piece back pad with 2 leather pads and a stainless steel arch prevent direct pressure on the backbone. Lateral pads on both sides of the belly are designed to lower shock traveling by the shafts or draught rings.

(www.schaffmatpaerd.com)



SmP Kombi-Eig Combination Harrow

This weed harrow-type implement was developed by SmP for maintaining gravel paths. It is being evaluated for use with alternative tines and shares for weed control or garden cultivation.

(www.schaffmatpaerd.com)



Hydraulically-driven Row Trimmer mounts on a self-propelled Hagie sprayer to clip weeds above crop canopy. Reel pulls weed heads into sicklebar.

Innovative New Methods Of Mechanical Weed Control

Dave Button can clip problem weeds between rows with his Row Shaver or clip weeds above the crop canopy with his Row Trimmer. His innovative new weed control equipment earned him a place as one of 10 finalists for the \$50,000 Farm Bureau Ag Innovation Challenge.

The 2-part system eliminates in-crop competition for organic farmers and reduces the production of herbicide resistant weed seeds for conventional farmers. Both units are designed to work on the Hagie 284 high-clearance, self-propelled, front-mount boom sprayer.

"I came up with a quick-connect for the Row Shaver and the Row Trimmer," says Button. "We also have an adaptor for the spray boom. It takes only half an hour to switch from one to another and makes the sprayer a more fundamentally useful tool."

Frustrated with ever more difficult to control herbicide resistant weeds and seeing the potential for weed control in organic crops, Button came up with the concept about 6 years ago. He built a crude one-row version of what he wanted, and that winter he tried it out on onion fields near McGregor, Texas.

After several years and multiple redesigns, Button is ready to market his weed control system based on the twin-tank, front-boom Hagie sprayer. It will require no manufacturing, simply assembling off-the-shelf components, many made in Kansas.

Each row unit for the Row Shaver features 4 blades, with length options to match row spacings of 18 to 36 in. The hydraulic motor on top of each row unit drives blades on a flail mower-type head. If they hit something like a rock, they will bounce back. Behind each cutting head is an adjustable gauge wheel with foam-filled tires on a trailing link suspension system. An air bag assist lift on parallel linkage at the toolbar lets the row units float across the ground.

"The air bag lifts the row unit, allowing it to skip across the ground surface with the wheel bouncing every 4 to 5 ft.," says Button. "It can go from skimming the ground to riding 12 in. above the surface if desired."

Row units hang down from a toolbar with guards and deflectors to protect row crops from the blades. Changing row spacing requires adjusting the units on the toolbar, as well as changing out blades.

A hooded sprayer behind the blades allows the option of combining mechanical and chemical controls. Optional fertilizer tubes installed to the rear of the spray units make side dressing while cutting weeds a possibility.

"We have meters to track motor speed for each row unit," says Button. "They are



Row Shaver clips weeds between rows, using hydraulic-driven blades mounted on a flail mower-type head.

monitored from a screen in the cab. Once in the crop, the driver can't see the unit working, just weeds falling. If anything happens, we want the operator to know immediately."

The Row Trimmer is a mini-combine head. Its hydraulically driven sicklebar and reel float above the crop. The reel is designed to pull weed heads into the sicklebar. If they start to pile up on the bar, the undulating curves of the reel push them off to the side. Currently only 15 1/2 ft. wide, Button plans to expand it to a 40-ft. folding unit.

"The Row Trimmer worked right out of the box," says Button. "We used it on sunflower escapes, velvet leaf and pigweed. If you trim before the seeds pollinate, they won't grow."

While he's satisfied that everything works as planned and is taking orders, Button is already working on upgrades. He is planning to move the supplemental engine to the rear of the Hagie. This would let him reinstall the left tank for more spray volume.

His current prototype is a 5-row spacing system. Increasing the number of row units will be necessary for wide scale row-crop adoption. That will require a larger sprayer to carry the additional row units and the longer toolbar.

"Hagie makes a larger sprayer with a toolbar for an all-hydraulic driven, 12-row corn detassler in place of the spray boom," says Button. "If it has enough hydraulic capacity to drive 11 Row Shaver units, it could be a productive unit."

"We're selling the Row Shaver units for \$8,000 to \$10,000 each, depending on options and installation," says Button. "With chemical weed control costing from \$35 to \$50 per acre, it won't take long for the Row Shaver and the Row Trimmer to pay for themselves."

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