Controlled drainage technology or flow control uses structures within pipes to regulate water flow. Boards or "mini dams" are farmer-controlled or pre-programmed to block or release water.

Automated Drainage System Shows Promise For Midwestern Crops

South Dakota State University's Department of Agricultural and Biosystems Engineering is researching automated controlled drainage systems, an emerging technology that saves early rains for later dry spells. Comparisons focus on nutrient management and crop yields from free-flowing, manually controlled, and automated field drainage.

John McMaine, current University of Kentucky Professor and recent SDSU researcher, explained, "Automated controlled drainage takes field-installed tile drainage systems a step further."

Cropland drainage systems are widely used in the Midwest, with an estimated 40 percent of farm fields using tiles. Their environmental drawback is that outflow can contain high nitrate levels as it enters rivers or streams, causing algae blooms that disrupt the ecosystem's natural balance or initiate human health issues.

Controlled drainage technology or flow control uses structures within pipes to regulate water flow. Boards or "mini dams" are farmer-controlled or pre-programmed to block or release water.

Agri Drain Corp., an Iowa-based company, created the system used by McMaine's team.

During the 2024 growing season, SDSU installed soil moisture probes throughout their trial plot to provide data on how the crops reacted to different drainage methods. This information is still being analyzed.

"I think the future of automated controlled drainage systems is very bright," says Josh Becker, SDSU agricultural and biosystems master's student and engineering major heading up the trial's data analysis. "To combat variable high and low levels of rainfall, this system offers a solution to store moisture and make it available through dry periods. Additionally, farmers must get ahead of the curve regarding the environmental impacts of nutrient export from fields. It's hard to put a number on this value, but automated drainage offers a potential solution."

The SDSU research will continue in 2025. Agri Drain's automated technology is commercially available. They recommend interested parties contact them directly for pricing and installation details.

Contact: FARM SHOW Followup, Agri Drain Corporation, P.O. Box #458, 1462 340 St., Adair, Iowa 50002 (ph 800-232-4742; info@agridrain.com; www.agridrain.com).

Enjoy Homemade Butter Fast With A Sawzall

If you're looking to make homemade butter and lack the traditional churn, it's possible to leave the shaking to a Sawzall. Instructables user @1ofakindwork decided to experiment after discovering that shaking a mason jar of heavy whipping cream into butter took over 30 min. He brainstormed a less intensive strategy and stumbled on the strategy of using a Sawzall. "Now I can make homemade raw butter in 2 min. or less with minimal work," he says.

The process requires a Sawzall and system for stabilizing it (clamps or ratchet straps) along with a sturdy table, 3-in. no hub band with full metal collar, an old Sawzall blade, a small piece of 1/2-in. plywood, four casters, zip ties, a nut driver, drill bits and a table vise to keep everything in place. But most important, according to @1ofakindwork, is a sense of safety. "Sawzalls are not toys. Please don't try this unless you take all safety precautions and are well-versed in using this tool. They're very aggressive and powerful."

The first step is to clamp the Sawzall blade to the table and cut off its teeth, rounding and smoothing the sharp edges. @1ofakindwork used a metal cut-off wheel mounted to a Dremel. Next, mount the Sawzall to the table and prep a mason jar with 1 cup of room-temperature heavy whipping cream and 1/4 tsp. salt, making sure to screw the lid tight. You'll then need to remove the metal sleeve from the no-hub coupling, flip the rubber inside out to expose the coupling divider, and cut the divider off. Flip the rubber right side out again and replace the metal sleeve. Next, drill four holes into the plywood's corners and lay the jar between them. Run zip ties through the holes and around the jar to secure it and create a sled.

Photo courtesy of @1ofakindwork at Instructables.com

Butter can be made in just a few minutes using the power of a Sawzall.

Everything is now prepped for the two minutes of shaking necessary to make butter. Mount the plywood sled to the Sawzall and turn it on, starting slowly and checking on the zip ties. Ease up to a comfortable speed, ensuring you control the jar the whole time. "You'll know the butter is finished when you see solids form in the jar and become one mass," says @1ofakindwork. You can strain the butter to remove the buttermilk, then store your homemade butter or enjoy it fresh.

Contact: FARM SHOW Followup, Instructables (www.instructables.com/Home-Made-ButterButtermilk-The-Man-Way/).

Hydraulic Block Makes Multi-Hose Hook-Up Simple

"When Deere installed single-point hydraulics on their combines, followed by front-end loaders and buckets, we thought the natural progression would be to put them on tractors since most implements are connected and pulled by them," says Brady Teveldal, Lankota Research and Development Specialist.

Lankota partnered with a company that manufactured single-point blocks and adapted the mounts for 3-pt. quick attach assembly for small and large tractors.

The brand-agnostic units attach directly to any tractor's frame. Operators choose two, four or six port conversions, which can be mixed and matched depending on the number of hoses attached.

Implement hoses connect to the block's male side, and the female section links to the tractor. Connections can be made under pressure, and tractor couplers require no alterations or modifications.

"Just pull the lever and lock it into place," Teveldal says. "It works with any equipment brand on any hydraulically equipped tractor. Nothing changes in the cab."

Breakaway valves on the implement block section are included for safety and environmental reasons, so live hoses won't tear if the hitch pin breaks or disconnects.

The add-on aftermarket block containing valves and hose kits is universal. Only the mounting bracket varies depending on the tractor.

Lankota's single-point hydraulic blocks are built in South Dakota and are available throughout North America at OEM dealerships.

"Most of our sales are for 3-pt. systems, so we make a universal mount that attaches to the quick attach," Teveldal says. "The only real decision is how many hoses the operator wants to hook up."

Lankota's single-point hydraulic blocks are built in South Dakota and are available throughout North America at OEM dealerships.

Prices range from $1,100 to $4,000 plus S&H, depending on the number of ports and mounting selected.

Contact: FARM SHOW Followup, Lankota, Inc., 270 West Park Ave., Huron, S.D. 57350 (ph 866-526-5682; www.lankota.com).

Add-On Improves Air Conditioner Efficiency

The Cool-n-Save aims to maximize the value of your air conditioner. "It's an award-winning misting system for residential air conditioning units," says company representative Des Barkes. "A group of friends created it after noticing how outdoor ambient heat directly affected the performance and power consumption of A/C units. By taking careful measurements, they identified an opportunity to optimize cooling systems."

By nature, modern central air conditioning systems struggle to keep up in extreme heat, as they can't transfer their stored heat into the surrounding air. This forces the systems to work longer and harder, which wears them out faster. The Cool-n-Save increases efficiency by releasing ultra-fine water mist into the air, where it evaporates almost instantly and sucks heat from the air in a process called adiabatic saturation. The three misting heads use 1.5 gals. of water per hour, meaning that a 12-hr. run time uses the equivalent water of the average shower in the U.S.

"The Cool-n-Save system reduces A/C energy consumption by up to 30 percent by cooling the air around your A/C unit with water mist, making it easier for the A/C to release heat," says Barkes. "This process reduces strain on the system, allowing it to use less energy and cool your home more quickly. It's a simple, cost-effective solution for homeowners seeking to lower their energy bills while maintaining comfort during the hottest months."

The company shares that independent, third-party engineering studies prove Cool-n-Save A/C misting can help lower utility bills by $390 per year for the average home. "The savings from just one hot season can be high enough to cover the purchase cost," says Barkes. Installing the Cool-n-Mist is equally simple. **"**No tools or electricity are needed," he says. "The paddle attaches securely to the top of the outdoor condenser units of most A/C systems and connects to a standard garden hose." Once set up, the Cool-n-Save requires minimal attention, as it automatically activates when the A/C unit is in use.

"The Cool-n-Save system reduces A/C energy consumption by up to 30 percent by cooling the air around your A/C unit with water mist, making it easier for the A/C to release heat," says Barkes.

Barkes says the Cool-n-Mist is popular with eco-conscious homeowners looking to reduce their energy footprint. "It's been featured in several green energy publications and has received positive feedback from consumers and energy conservation groups. Its success story demonstrates how a small, well-engineered product can make a big difference in residential energy use."

The basic unit retails for $119.99 and includes a 1-year warranty. It comes with 20 ft. of hosing (more is available for $19.99) and all necessary connectors. Due to extremely hard water, Cool-n-Save will not sell or ship to Arizona, Nevada or Palm Springs, Calif.

Contact: FARM SHOW Followup, Cool-N-Save (ph 303-539-9357; support@coolnsave.com; www.coolnsave.com).