



Greenhouse grower Christine Bailey uses composted horse manure (seen in foreground) to keep beds of spring seedlings warm during the late winter.



Once the seedlings are moved out, Bailey sets eggplants, tomatoes and other heat-loving plants into the compost beds.

Triple Duty Horse Manure Heats Greenhouse Seedlings

Mini-bunkers of composting horse manure keep Red Cat Farm's seedlings warm in late winter and serve as growing beds in the summer. Once the beds are harvested, the compost is spread on other garden beds. The method has eliminated the need for purchased heat for greenhouse production.

"I don't like to spend money if I don't have to," says Christine Bailey, owner, Red Cat Farm in Pennsylvania. "We have only 1 1/2 acres, so we try to do as much as we can without purchased power or other inputs. We use passive solar greenhouses and a solar panel for power to pump water to garden beds."

Bailey raises thousands of vegetable and herb seedlings each spring to plant in her market garden to retail at a nearby self-serve stand.

Bailey uses concrete block beds that are 20 ft. long, 4 ft. wide and about 3 1/2 ft. high. The two beds are inside a small plastic covered hoop house that is 12 ft. wide and 36 ft. long.

The manure, which she gets free from local stables, is mixed with straw, wood chips or

other bedding material. It's mixed and aerated as it's dumped in the beds in late winter. Bailey fills the beds to within a foot of the top, leaving room for seedling flats and the young plants to grow. After letting it "cook" for about three weeks, she starts putting it to use.

Bailey starts bedding plants under grow lights in her basement. Once the compost beds are producing heat, she moves the seedling flats to the greenhouse.

"I add about 2 to 3 in. of finished compost to the top of the manure beds to absorb ammonia as it's given off," says Bailey. "I also put a layer of landscape fabric between the seedling flats and the compost to keep the seedlings from rooting in the compost." Once the flats are set in place, she covers the bunkers at night with sheets of Polygal, a stiff plastic. She props them up during the day. On really cold nights, she adds a layer of greenhouse plastic over the Polygal sheets for extra insulation."

She says the seedlings get the benefit of the heat as well as carbon dioxide given off by the compost. The only negative is if excess

ammonia causes tip burn. The seedlings also benefit from warm days and cool nights in the greenhouse that naturally harden them off. As the weeks pass, the compost produces less heat, and the plants need less heat. Also, as the compost breaks down, it settles, allowing her to continue using the plastic sheets over the increasingly taller plants on extra cold nights.

"I've been using this method to raise several thousand vegetable and herb bedding plants for the past five years," says Bailey. "This year I'm extending the bunkers by 8 ft. each."

Once the weather has warmed enough, Bailey moves her seedlings to a second and larger unheated greenhouse. Low plastic tunnels over beds provide sufficient protection until the plants are ready for outside beds.

Once the seedlings are moved out, Bailey sets eggplants, tomato and other heat loving plants in the compost beds to grow through the summer. They get some benefit from low-level heating as well as all the nutrients they need.

By the end of the season when the beds are all harvested, the compost is fully broken down. She then empties the beds and spreads it on outside garden beds to build the soil in them for the coming year.

"It still has some nutrient value and lots of organic matter," says Bailey.

She credits extension specialist Steve Moore, now a research and extension associate, North Carolina State University, for the ideas behind her low-cost system.

She also sells vegetable and herb bedding plants at a nearby feed mill using an honor system. Clearly marked plants are left out on benches for buyers to select. Bailey relies on them to leave their money in a secure box.

"I am only there on Saturday mornings to answer questions and help people who need it," she says. "The honor system works great and lets me sell plants when I can't be there."

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Air Blaster Keeps Baler Knotters Clean

British farmer Fred Symes eliminated problems with the knotters on his Hesston 4900 square baler. His home-built system cost him just \$230, far less than a similar retrofit kit he could have ordered from his dealer.

In addition to the knotters, Symes' system keeps the stuffer brake clean. He mounted a small air tank on front of the baler and ran plastic tubing back to nozzles directed at the knotters and the stuffer brake. The blast of air is controlled by a pair of electric solenoid valves connected to a switch in the cab. Symes hits the switch each time the knotter buzzer goes off, keeping the mechanisms totally free of debris. After each blast, it takes the tank about 45 secs to be restored by the tractor-mounted air compressor.

"I thought about fitting a timer relay so the air blast would be automatic but then I would have needed a manual override as I wanted to be able to give a blast before going out to check on them. I also didn't want the cleaning cycle to go off when I'm on the back of the baler. Pushing the button is no big deal," says Symes.

Keeping the stuffer brake clean could prevent a fire since the brake often reaches high temperatures.

Symes farms 1,100 acres near Gatwick Airport in London. He says he's now fitting a second blower to his MF 185 baler and that the idea should work on any baler.

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To keep the knotters on his Hesston baler clean, British farmer Fred Symes mounted a compressor in his tractor and an air tank on front of baler.



Plastic tubing runs back to nozzles directed at baler's knotters. The blast of air is controlled by electric solenoid valves connected to a switch in tractor cab.



Tilting Bucket Hitch allows loader bucket to tilt up to 30 degrees, making it useful for digging ditches, cutting into side hills, etc.

"Bucket Tilt" Hitch For Skidsteers

"This is another tool to improve the versatility of a skidsteer," says Clinton Nesseth, one of three brothers and owners of 10 Man Tools, an agricultural manufacturing company. "Our Tilting Bucket Hitch allows the bucket to tilt up to 30 degrees."

That makes it useful for digging ditches, cutting into side hills, working in very hard soil and doing a variety of other agricultural, construction and landscaping jobs.

"One key to its success is that we built it with the pivot point above the bucket, so the corner swings to the middle of the machine, giving you maximum power," Nesseth says.

The \$2,100 fast-tach hitch attachment has a hydraulic cylinder that controls the angle

setting. Once the hitch is on it can be used with a standard bucket or even forks and other attachments. The company also sells the attachment and bucket for \$3,900.

The patent-pending hitch is made in the U.S. and has a 1-year warranty.

Nesseth and his brothers built the tool based on experience and knowing what customers need. They are former dairy farmers, who manufacture a variety of skidsteer products as well as N-TECH liquid manure pumps that started their business 30 years ago.

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