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## Super-Sized Mobile Chicken Coops

In 2012 Paul Grieve and his brothers started with 50 chicks as a way to get pasture-raised poultry for their families. Grieve put an ad on Facebook for his chickens and sold out quickly.

"We had 110 families that wanted chickens," says Grieve. "The next 2 mos. we ordered 100 each month, and the following month we went to 1,000."

Recognizing an opportunity, the brothers formed a company. Paul quit his job as an accountant and continued expanding the number of birds and the size and number of

coops. By 2019 they were raising 500,000 chickens a year. Recently they introduced the Automated Range Coop (ARC) which holds 6,000 birds.

"We needed to be more efficient," says Grieve. "Four years into the business, we were proud of what we had accomplished, but the birds were expensive. We wanted to make pasture-raised poultry more accessible and affordable."

To do so, they needed to maximize efficiency of the coop and find a partner in the vertically integrated poultry industry. They

needed access to large-scale hatcheries, feed mills, transportation and distribution.

The ARC is designed to hold 6,000 birds because that's enough to fill a standard poultry transport trailer. It's a 7,500-sq. ft., clear span structure, powered by its own solar array. Electric motors on the drive wheels move the 50 by 150-ft. ARC 50 ft. in 7 to 10 min. That is based on the rate a chicken can comfortably walk. Every day, it automatically moves sideways to fresh pasture. When it gets to the end of the field, the articulating wheels turn 90 degrees, and the ARC moves to fresh pasture on the next swath. The next day it starts a return trip down the field.

"An ARC won't return to the same area for 75 to 90 days," says Grieve. "One unit will cover about 15 acres a year, with each batch of 6,000 birds fertilizing about 4 acres."

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"It always smells and feels good inside the ARC," says Grieve. "You could sit down and eat lunch there."

"With on-board power, we can have climate control, using venting and overhead fans, even misters if needed," says Grieve.

"It can be 100 degrees on bare soil outside and 72 degrees inside. We have curtains we can use if the temperatures fall."

Building the first ARC was a 4-year project involving a team of specialists in a variety of areas. Design and engineering alone were a challenge. The structure needed rigidity and flexibility while being outfitted with wheels that could traverse a rough surface on all types of soil and in all types of weather.

"We had rocket scientists from the Jet Propulsion Laboratory helping us," recalls Grieve. "When they finished, they said they were going to be glad to get back to something simple like a rocket."

At the same time the ARC was being perfected, the Grieves were looking for a corporate home to take their dream to the next level. About 2 1/2 years ago they signed on with Perdue Farms.

He notes that Perdue Farms was the first big poultry producer to add an organic line and the first to go antibiotic-free.

Currently, the Grieves' "Pasturebird" ARCs are in place in California and Georgia. They have them placed on a variety of farms.

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The 1,000-watt, 36-volt power supply provides a run time of 8 hrs. continuous use and up to 3 mph speeds.

## Battery-Powered Ox Is A Big Mover

Jackie Smith needed a way to move landscaping materials easier, and Justin Meng had the technology to do it. Between the two of them, they designed the Ox, a battery-powered materials mover.

"There's always a better way to get a job done, and I had ideas for a product to move materials, but I didn't have a power system," says Smith. "I saw Justin's power system at a trade show and contacted him. We started working on the components to put his power system to work for landscapers."

The basic Ox has a footprint of 78 by 33.5 in. and a height of 48 3/4 in. The 14-ga. steel, 30-degree, slotted bed carries up to 1,000 lbs. of bags, bales and more to the worksite. An electric actuator controls unloading as it lifts the bed to a near-vertical position. Add the 10-ga. steel, 34-in. wide wheelbarrow attachment and carry about 10 cu. ft. of loose material as well. Several other attachments designed for the landscape and nursery industries make the power unit even more versatile. All attachments use a hook-in-slot design.

The 1,000-watt, 36-volt power supply provides a run time of 8 hrs. continuous use and up to 3 mph speeds. The transaxle has forward and reverse and electric braking. The unit also features a 20-amp, onboard battery charger, maintainer and conditioner.

"The drive system works really well," says Smith. "It's easily controlled and has plenty of power for 90 percent of applications."

The basic power unit is one that Meng's company has adapted to a variety of customer needs. "Vinergy follows a customer collaboration process in developing products," says Meng.

The Ox is available for purchase at a base price of \$8,999. Attachments are available separately or as a package with an Ox.

The Ox is also available in a smaller version, the Baby Ox, and will soon be available in a Pro Ox version as well.

"The Pro Ox will have a 3,000-lb. carrying capacity and even greater towing," says Meng. "We think it will have potential in the concrete or hardscape industry."

Smith emphasizes that the Ox with its four attachments is just the beginning. "We have about 15 attachments we are developing based on ideas I've had since we first introduced the Ox," says Smith. "We have prototypes for moving 15-ft. long rolls of artificial turf, pipes, lumber, fencing and more. We're even working on one that will carry a mobile cement mixer, as well as water and bags of mix."

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## She Pelletizes Chicken Feed

Karen Johnston takes her chicken feed seriously, which is why she pelletizes it. She uses an on-farm mill to turn her loose chicken feed into tight uniform pellets.

"Anyone who has ever fed a mash diet to poultry knows the birds love to pick out the largest particles and leave the all-important 'fines' behind," says Johnston. "This will change your balanced feed into a nutritionally deficient diet that can prevent your flock from reaching its full potential. My solution is to pelletize the mash feed."

Johnston is the owner of Peak Poultry and raises Rhode Island Reds. She is a member of the Sustainable Poultry Network, dedicated to producing standard-bred, heritage, pastured poultry versus commercial hybrid poultry.

She outlined her approach with pelleted feeds in detail in Issue 120 of the American Pastured Poultry Producers Association magazine. Johnston agreed to share a condensed version with FARM SHOW readers.

Frustrated with available commercial rations, she decided to go with a custom ratio. "I wanted to have as much control as I could, and I wanted it adjusted seasonally," says Johnston.

She realized she could use low-cost, hammer mill ground feed, even if it was powdery, if she turned it into pellets. There were low-cost pellet mills built in China available on the internet. However, she wanted one from a place she could call for help or parts.

"I bought my pellet mill from Pellet Masters," says Johnston. "They spent a lot of time talking through my options with me."

The company has a wide range of mills, large and small, powered by single and triple-phase electric motors, gas and diesel engines or powered by belts or pto. Initially, Johnston considered their smallest, electric pellet mill (\$1,385), but it would have required having her grains ground.

While the larger horsepower mill was almost twice as expensive as the small one, the vertical design had only a 20-in. sq. footprint. The larger mill has allowed her to avoid pre-grinding. She buys cracked corn and uses full fat extruded soybean meal instead of roasted soybeans.

"It can pellet whole barley without any trouble," says Johnston. "The company recommended a 3-millimeter die for chickens.



Johnson uses a pellet mill to customize her chicken feed.

I was pleasantly surprised that the baby chicks could eat the small pellet at 3 to 4 weeks. The adults don't mind the size either."

The pellet mill relies on compression to pelletize the feed mixture, producing a hot and fragile pellet. While Johnston's pellets were not as sturdy as commercial pellets, the company notes that running crumbly pellets through a second time can make them harder. She found that even the second run pellets left some dust in the feed trough.

"To make a sturdier pellet, I changed the process, running the hot pellets into shallow concrete mixing tubs and setting them under a fan to cool before putting them into the feed barrels or storage bins," says Johnston. "Previously they dropped 2 1/2 ft. into the feed barrels, trapping heat and causing them to cool slowly. Now I wait until the pellets cool to under 80 degrees before rough handling, and they hold their form better."

Johnston has also begun adding Redmond Conditioner, a pellet binder to help with pellet quality. She estimates spending on average an additional 90 min. per week pelleting her own feed.

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