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Mobile Power Unit Uses Most Attachments

While working with heavy-duty off-road equipment in the 1990's, DANNAR® founder and CEO Gary Dannar, recognized a unique need. Prominent companies such as CAT, John Deere and Bobcat, were building well-made machinery attachments, but they often needed to be retrofitted for diesel engines and tractors. His solution became a platform to use these existing attachments and consistently power them.

Dannar began building prototypes of his vision and, as battery technology advanced,

he steadily improved them until 2018 when he launched his 4th generation mobile power station (MPS®).

"The idea of the mobile power station was not to create new attachments or another line of single-purpose equipment; it was really about the power," says Donna Marie Bertrand, DANNAR's Marketing Coordinator. "We like to call it 'attachment agnostic'. We're not looking to reinvent but to empower the workforce, helping them have the tools they need, when they need them, and how

they need them."

The 4.00 MPS features 4-WD, dual flat decks compatible with various attachment points, and comes with or without an operator cab. Attachments accommodated by the decks include scissor lifts, forklift masts, light units, liquid tanks for autonomous delivery and numerous others.

"Attachment arms click into the decks like Lego connections. You can attach a bucket, do your work and then easily drop it. Some are mechanical like for pushing dirt or hauling. Others have hydraulics on a separate quick connect. It's kind of like having a docking station for your laptop, mouse and monitor."

The unit can be run from the operator's cab using a joystick, from the ground with remote control, or programmed to move autonomously by accessing GPS coordinates.

"When we demo an MPS and put the remote in an operator's hands, they start realizing the power they have," Bertrand says. "It moves and works, and they begin to think of other possibilities, wondering, 'can it also do this for me?' It's all about the end user's imagination."

DANNAR is working with other knowledgeable robotic researchers to make the MPS autonomous, not only to move from one point to another but wayfinding, aware of the need to avoid obstacles.

The 4th generation model 4.00 base con-

figuration comes standard with 250 kWh BMW i3 Li-Ion batteries and power options include 250, 375 and 500-kilowatt packages. All three levels have export and charging power capabilities should varying fleet equipment require field charging.

Bertrand explains both importing and exporting abilities come with universal, commercially available connectors easily linked to the standard grid system.

Dannar chose Muncie, Ind., as the location to manufacture his MPS to draw from a large skilled workforce and access a variety of supportive industries.

Units are available domestically and throughout North America.

Bertrand outlines the MPS has been used in military, utility, agriculture, plus many other industries.

She says the MPS is cost-effective, and its price range is comparable to other large heavy-duty equipment, especially when customers realize they can continue to use their existing attachments. Fuel budgets are partially or completely traded for electrification along with a reduction in maintenance as yearly hours are only in the 2 to 10-hour range.

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MultiSpread 320 with light material sides spreading compost. Inset shows hydraulic drive for conveyor and apron.

Compost Spreader Keeps Getting Better

Earth & Turf pull-type, compost spreaders have become even more versatile since our original story in Vol. 44, No. 4. The

MultiSpread 320 is capable of hauling up to 54 cu. ft. and a load of up to 2,700 lbs. The 320 is available with hydraulic or ground

drive and can spread to the left, right, center or full width.

"We started working with market gardeners a few years ago, and they wanted to go over the row," says John Bentley, Earth & Turf. "We started with our 220 model and quickly began making changes for spreading light, bulky materials."

As the 220 evolved into the 320, options expanded. A cross conveyor on the back end was offered to meet the needs of vineyard growers. It unloads to either side, throwing compost over the row.

"A Christmas tree grower puts compost on the row and wood chips over the top, so he doesn't have to mow," says Bentley. "He wanted to use more compost, so we made the conveyor 25 percent wider."

The hydraulic drive option was added to meet the needs of users who wanted to lay down heavier loads of material. Paired with a hydrostatic transmission tractor, the operator can slow down the ground speed, yet run the spreader for maximum output. Bentley recommends hydraulic systems with at least 4.5 gpm and 2,000 psi.

"We like at least 6 gpm for full capacity

spreading," he says. "The higher the psi, the greater the torque."

Beater systems are variable as well, shooting off to the left or right or both ways, leaving a 24-in. center strip bare. The standard beater delivers a spread of up to 60 in. The shroud over the beater can be adjusted, as can wings on the shroud for different patterns. Remove the drive belt and material drops in a 30-in. wide pattern.

"We can change components as needed for the user," says Bentley. "If people want a high unit, we mount special tires, either ag or turf or special axles for different row widths. Beaters can be changed out by removing four bolts and the drive belt. Making specials is what we do."

The basic 320 has a 58 3/4-in. width and a 122-in. length. Height without sides is 39 1/2 in., and it weighs 760 lbs. It's priced at \$6,995.

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Each robot can harvest up to 1,200 heads per hour versus 515 per laborer. Each head is cut at a specified size and height versus assessment by eye and experience with manual harvest.

Robot Harvests Broccoli Fast

Hands-free broccoli harvesting is here with the RoboVeg (RV) from RoboVeg Ltd. in England. The harvester can operate in most

conditions, rain or shine, day or night.

Developed over the past 10 years, RoboVeg seems to be catching on quickly as the cost

of manual labor in the United Kingdom increased 35 percent over the past five years.

"We founded the company and field-tested prototypes in 2019 but held off on introduction in 2020 to make some improvements," says Remy Clarke, RoboVeg. "We sold a few for the 2021 season but are now seeing a lot of interest and orders for this year."

In addition to eliminating manual labor and fair weather/daylight only picking, the RoboVeg offers several distinctive features. The LED illuminated vision system, with its 2D cameras and 3D sensors, scans the field as the machine moves forward. As it locates broccoli heads, it sends coordinates to the harvesting robots.

A cutting hand designed specifically for the RV cuts the stems to a precise length. The heads are then dropped in boxes at the end of the harvester.

The recognition system can be adjusted within a few millimeters for maximum and minimum size crowns for harvest. It also maps the size of crowns harvested and recommends when to make a return trip to

harvest new growth.

Data is gathered in real-time and communicated to both the operator and the farm office or manager. It can be used in real-time, as well as for historical data analysis and yield mapping.

Each robot can harvest up to 1,200 heads per hour versus 515 per laborer. Each head is cut at a specified size and height versus assessment by eye and experience with manual harvest.

RoboVeg prices start at \$260,000 for the RV1 with its single robot head. The largest unit, the RV3, weighs in at about 6,000 lbs. It has a length of 8 ft., a width of just under 20 ft. and a height of 6 1/2 ft.

"The RoboVeg is currently set up to harvest broccoli and pointed head cabbage," says Clarke. "We will be looking at adding other crops in the future."

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