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NURSERY MECHANICAL SYSTEMS

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Polk Nursery is located in the heart of peninsular Florida, midway between Tampa and Orlando. The operation was started in 1916 as an *Asparagus setaceus* 'Nanus' [syn. *A. plumosus* 'Nanus'] fernery and was converted 30 years ago to a wholesale woody-stem container nursery. The production today occupies 130 acres. Heated polyhouses cover 15 acres and 80 acres are irrigated for 32°F cold protection. The woody stem production is 85% blooming or showy plants in 6-, 8-, and 10-inch containers. Plants are delivered on company trucks within 200 miles. Over half of the plants are delivered within 72 hours after they are sold. The intensive care and warmth of Florida affords two turns of production with 140 employees and 130 pieces of mechanical equipment. The selection of mechanical equipment that we use was based on a 5-year payout of initial cost and maintenance. The savings may be in reduced labor, increased speed or production, improved quality, lower maintenance, or measurable job dependability. For this to be accomplished, we find that it is most important to build or purchase maintenance-free equipment, have parts and service dependability, get a machine larger than you think the job requires, and use only operators that will care for equipment.

One of the loaders and sprayers that we use has been operating for over 20 years. Our employees show more concern for equipment that does not look neglected. The Bouldin and Lawson flat filler does an excellent job. Our only wish is that this company would build heavy-duty models. It is mandatory that the 28 miles of roadways be maintained for all of the equipment. Water control also is never-ending with 50 in. of rain plus 150 in. of supplemental irrigation.

The 6- and 8-in. pot-filling equipment that we constructed 3 years ago has performed beyond our wildest dreams with little or no wear after handling 25,000 yds of potting soil.

The system consists of a series of overhead belt conveyors that bring the soil to the containers. These are brought in on a series of trains pulled by a tractor through a 200-ft long illuminated building, which is heated in winter and well-ventilated in summer. Empty containers are positioned on the trains as they move through the building. The soil operator has complete control of the hydraulic-operated conveyor system to discharge soil over 65 ft of trailers without stopping. As the soil is leveled on top of the containers, the potters place the liners in the filled containers. When the train completes these three stations, water and herbicide are applied as plants are on their way to the field. The system is designed to handle 80,000 6-in containers per 9-hr day, 5 days a week.

Since 90% of our human resources are female, it is mandatory to find a dependable system to unload as fast as our new potting system operates, which we have set at 40,000 6-in containers per day. The machine is a large farm tractor with an extra-heavy U-shaped superstructure that supports a 40-ft conveyor on one side and an off-setting counter-weight on the other. The conveyor operator travels along the 40-ft bed and delivers the plants to the unloaders so they do not have to move over 5 ft. The system will also reverse so plants can be removed from the bed if necessary.

Probably we apply more spray per acre in a year than any woody stem nursery. This requires a most dependable assortment of spray equipment, most of which we built ourselves. It has the same extra-heavy-duty tractor with U-shaped superstructure that holds 2 outrigger booms that apply spray to the top or bottom sides of the foliage.

For 15 yrs we have shipped all of our plants on metal racks that separate into 2 parts to make loading in the field faster. The system allows for fast, efficient handling of the racks on and off the field trains, on the loading dock and onto the trucks. Easy inspection of plants being shipped as well as inventory control are tremendous extra benefits.

In summary, it seems impossible today to match the speed that our customers demand, and with reduced production costs, without the most efficient, dependable, maintenance-free mechanical devices that will complement the talent of our human resources.