Other facility enhancements include a sticking table consisting of expanded metal sheeting, framed with angle iron, and extended with chain. When the table is not in use, chains are removed allowing the tabletop to swing to a vertical position, creating a wider thruway for traffic flow.

CONCLUSION

The nature of our industry's tedious handwork creates health issues that can often be reduced by creative methods and facilities. The use of air-conditioned and heated work areas increases employee comfort, reduces plant stress, and increases productivity.

On-Demand Color Label Printing System©

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In retail garden centers, it seems the need for an informational picture label accompanying the plant is as important as the quality or size of the plant itself. I have been told by some of our garden center customers that plants with quality picture labels will outsell plants without picture labels. Retail consumers can be easily swayed to choose the plant with the pretty picture label over plants with no labels or labels that contain only text. In recent years it has become the responsibility of the grower to develop these labels and have them manufactured and printed by companies that specialize in this process, and then purchase and warehouse the labels that will be needed for the upcoming sales season. When all goes according to plan, then the system works satisfactorily, as long as someone with great attention to detail manages the process. However, minimum order quantities of labels, changes in production, liner substitutions, and changes in consumer trends, often create a surplus of outdated labels. Labels that were paid for, but will never be used, is not a profitable thought.

To better serve our garden center customers, we knew we needed to supply them with color picture labels, but we wanted to find a way to do this without inventorying thousands and thousands of preprinted labels. Our goal was to develop a system to print color picture labels by order at time of order collection. We felt the benefits of such a system would be to eliminate the need for a warehouse full of preprinted labels and someone to run it, eliminate the accumulation of outdated labels, and be able to purchase only blank label stock. With the technological advancements of thermal printers and computer software, we have been able to develop such a system.

The system consists of an Astro-Med QLS-4100 Xe thermal printer and an air compressor, color images, blank label stock and color ribbons, our main computer system and database, and customized software to interface with the printer.

Astro-Med is a leading manufacturer of color label printing systems, life science instrumentation, and specialty data collection systems. Quick Label Systems is the name of their label printer division, and their printers are often used on food and beverage, automotive, and biomedical products. The printer can run from a standard Windows program or custom software, and costs approximately $18,000. It can print at a speed up to 7 inches per sec and uses a thermal transfer process over four-color ribbons, (magenta, cyan, yellow, and black). To make it possible to print at this speed, the color images are stored in the printer on a 256-megabyte flash card, and one card can store over 1000 images. The air compressor pneumatically lifts the print heads of the magenta, cyan, and yellow ribbons when the print routine only calls for black, thus saving the expensive ribbons.

Most of the color images were taken by our staff or supplied from our plant vendors. It was big job to get all of the photos taken, and a continual job to keep them updated. The images are stored in our plant database in our main computer system. Here they are used in advertising, promotions, website, and sales yard signs. Before being transferred to the flash card in the printer, they are specially formatted to allow for maximum storage on the card and rapid printing. Each time a new plant is added to the catalog, a new photo must be taken and the database updated.

We designed the shape of the labels, which are about 2×5 inches in size, and cost approximately $22/1000 labels. The color ribbons cost about $150 each but are made of a high-density pigment and low wax content, which means they print faster and last longer outside. Each set of four ribbons will produce at least 15,000 labels, depending on how many black and white labels are printed. Label stock and ribbons are purchased from the printer manufacturer in order to take advantage of warranty options on printer heads and other printer components. This maximum label cost comes out to be about 6 cents per label.

Our main computer system consists of a Microsoft SQL database and Ross Enterprise System software. This is an integrated system that is used throughout the nursery for order processing, inventory, production, and accounting. Many modifications to the code have been made, including the modification to interface with the Astro-Med printer. This interface allows us to print labels in the quantity and varieties needed for each sales order, and draws the plant information from our plant database.

The process starts in the sales office where labeling directions are given for each order. Most of those directions come from default settings set up in the computer, but can be overridden by the sales person. For instance, it is set that all garden center customers always receive color picture labels, and landscapers who request labels, would normally receive black and white informational labels. The sales person needs to indicate if the landscape customer would like labels, otherwise he will not get them. Patented or trademarked plants would also receive a label with the required legal information it.

When the order is ready to be shipped, the shipping department can also modify the label instructions. For instance, if they see there are five cultivars of daylilies on an order that might be easily confused by the customer, they can print the necessary labels to avoid the plants getting mixed in shipment. The order is then released and the picking tickets and labels are automatically printed by order. The picking tickets and labels are distributed to the pulling crews, and the labels are attached to the containers via a garment tag at the time of order collection.

As with most computer-related projects, the initial investment in capital and system development is high, but if done successfully, the payback comes in the output. In this system, the initial investment in printer hardware and software development was in the $50,000 to $75,000 range, and the cost per label of 6 cents is still high compared to preprinted labels. Also the cost to collect and format all the images was substantial, but this cost can rightfully be shared with the other intended uses of the images. The payback has come through greater efficiency in the entire process. The customized software in the sales office allows us to only print labels where we absolutely need them. Because the labels are printed by order at time of order collection, nobody has to count out labels by hand for each order. Ordering of labels is a simple process because there is only one type of label to order. There is never any outdated labels lying around, and best of all, there is no label warehouse to manage!