As preparation for the coming spring season, examine all movable parts for wear (top), run equipment to test compatibility with any new pot sizes (middle) and check new soil mixes for proper moisture. (Photos courtesy of Nexus Corp.)

Preparing Automation

Making sure all your equipment is in working order for spring can save money and a lot of headaches.

By Mike Porter

In the bedding plant industry, spring is the time when vacations to warm, sunny places are over and 16-hour days are about to begin. Everything must be ready to happen at once in order to take advantage of a very compact season that makes or breaks the entire year. The production plan must be in place; trays and pots must be on hand; plugs must arrive on time and at regular intervals; all systems in the greenhouse must be in working order; and the people necessary to handle the rush must be on board and trained. This period can be a mad scramble or a well planned and orchestrated exercise. In most operations, I suspect, it is a combination of both. Most industries face similar periods of heightened activity, but few face it to the level of this industry.

Since this is an article about automation, the discussion will center around how to prevent automation equipment from being the part of the operation that causes some of those precious days to be lost. Proper startup of headhouse automation equipment is critical to a smooth start and a successful season. In my last article, I talked about maintenance and repair of today's sophisticated equipment. This month, I will discuss how to prepare your equipment to avoid or minimize these problems in the first place.

SEEING CHANGE

The first consideration does not require touching the equipment at all. Look at your operation and note what you have changed from the previous year. Have you changed trays or pot sizes due to a change in crops or customer requirements? If so, you may well need new programs or implements for items such as transplanters or transporters, and feed conveyors or output conveyors may have to be adjusted to accommodate different widths. Have you changed container suppliers? Even though the flat size may be the same, different manufacturers use different amounts of plastic. Automated equipment requires containers of certain minimum rigidity. Most manufacturers will require that samples of the pots or trays used are sent to the factory to insure compatibility with the machine. An attempt to save a little money on plastic may result in an unpleasant surprise when production starts. Most manufacturers have been working with plastic suppliers to ensure compatibility. European trays tend to be designed to function with ➧

automation, but that is not always the case in the United States.

Since a greenhouse operation is an integrated system, a change in one area often affects other areas. This is particularly true with automation. Another obvious example of such a change would be a new soil mix. The automation will probably work with the different mix, but adjustments may have to be made. Automated equipment is sensitive to the moisture content of product passing through it. Consequently, some experimentation may be necessary to settle on the proper amount of water applied to any new soil mix.

There are probably many other examples that a grower can identify. The important thing is to take the time to reflect on changes in your operation and consider their effect on ancillary parts.

PREPARING THE EQUIPMENT

Of course, the equipment itself needs to be prepared even if no changes have to be made. You need to foresee any problems and avoid breakdowns, particularly during startup operations.

First, dirt is the natural enemy of any mechanical equipment. Your equipment has probably been sitting idle for quite a few months. I have always been amazed at how dirty my car gets merely from sitting in the garage while I have been on a long trip. Your equipment suffers a similar fate, especially if it has not been covered. Consequently, step number one in preparing for startup is clean, clean, clean. Not only is thorough cleaning essential for a successful operation, it also forces you to have a good look at all the parts.

Many additional steps should be taken. Most of them do not need to take a lot of time but can go a long way to avoiding problems. The best way to do this task is to have a checklist that can be followed every year and can be easily transferred to a new maintenance person. I don't think any

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of us would get on an airplane if the pilots did not go through their exhaustive checklist before taking off. You, too, are dealing with sophisticated equipment. Your manufacturer's rep can work with you to develop a checklist. Items on this checklist would include the following:

- Apply power and air, if applicable. Listen for air leaks. Check the computer screen for error messages.
- Apply manual power to all moving parts and inspect for damage or wear. Identify parts that may possibly need attention or replacement.
- Inspect needles, belts, solenoids, air cylinders, fans, motors, etc.
- Put in an empty tray and run a program to insure that all things are running according to your specs. Listen, smell, watch for things out of the ordinary.
- Lubricate, change oil, change brushes on motors, change belts, etc.
- Check your toolbox and your inventory of spare parts to ensure availability of items that need regular attention or replacement. Not having critical items in stock could cause a simple problem to result in a delay of a day or more if the part has to be ordered. I have always been a believer in carrying minimal inventory, but replacement parts are not an area to save a few dollars.

EQUIPMENT SAFETY

Another concern that is easy to overlook is the safety of your employees. Any equipment you buy will come from the manufacturer with the appropriate safety interlocks and warning signs. However, many production supervisors seem to think that safety and productivity are mutually exclusive. This is not the case, and we all have an ethical and legal obligation to ensure that the safety mechanisms on the equipment have not been tampered with or disabled. Additionally, check to see that the work area provides easy access for employees. Things tend to get moved around during different seasons. You don't want employees having to struggle to reach their workstations.

Once a plan is developed, preparing for startup of automation equipment can become a routine part of preparation for production. If you are not comfortable doing this yourself, at least initially, call your service person or sales person and arrange for an inspection of the equipment. Another sensible option is to set up a service plan for regular visits from your manufacturer's representative to perform a complete preventive maintenance program. Have a safe, productive and trouble free season. GPN

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