

examining greenhouse production models



Growers can learn a lot from other industries' production and marketing techniques. Applying the different models and methods to greenhouses and manufacturing can be beneficial for your growing operation.

By Bethany Dennis

The greenhouse industry becomes more competitive with each passing year. The state of the greenhouse industry today consists of fewer greenhouses, retail/wholesale combination greenhouses, competition among growers and the production of rooted products. In addition, the United States is under high pressure due to an increased number of imported products.

Two major areas growers and greenhouse manufacturers can learn from are production and marketing. Production encompasses energy expended to create the product, labor issues and environmental challenges. Marketing focuses on education of new products and techniques, greenhouse certification and achieving customer satisfaction. By examining productivity improvement, production models and how these apply to greenhouses and manufacturing, a grower can learn how to increase efficiency at all levels.

Understanding Production Models

Efficient productivity is key to create a quality product that customers come back for time and again. Technology, equipment, information and management all affect productivity and, therefore, need to be examined within each greenhouse.

By comparing the greenhouse industry to other highly technological industries, specifically the automobile industry, manufacturers and growers can learn positive techniques in achieving efficiency.

Both manufacturing and services have their origins in craft production, one of the first models. Craft production encompasses the idea of highly skilled laborers that create products very specific to

Left: Examining and applying different production models can help increase employee efficiency.

Register For Fall Meetings

The National Greenhouse Manufacturers Association (NGMA) will hold its annual fall meeting on Oct. 15-17, 2007, at the L'Enfant Plaza Hotel in Washington, D.C. This meeting will allow attendees to learn tips from industry experts and spend the day on Capitol Hill speaking with legislators and impacting the industry. Registration materials will be available at www.ngma.com shortly. Those interested in becoming involved in NGMA and its meetings should call (800) 792-NGMA.

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customers' needs. Products are built one by one and use detailed craftsmanship. Because each component is created separately, a laborer or machine is required to fit the parts together to produce the end product. Though each component may be strong, this process results in an overall low-quality and time-consuming product.

In the time of the industrial revolution, mass production emerged. All parts were gauged by using the same system to fit all the pieces together. Because it was a uniform system with nearly no need for adjustment during production, quality and productivity improved. In addition, each step was simple so it did not require skilled or educated laborers. Though this resulted in a high turnover rate, employees were easily replaced.

A drawback to the mass production concept was that the final product needed inspection as it came off of the assembly line. This resulted in a lot of time and energy spent in quality assurance inspection to meet required standards. In addition, facilities needed large quality control areas.

The common misconception of automation versus productivity is revealed when companies look at the believed efficiency of the mass production model. Many people think the more equipment a company utilizes, the more productive it is. This is false because no matter how much equipment is available, the proper use of it ultimately determines its efficiency. In addition, the proper level of automation is very important as well as a good work culture and employee education.

Lean Manufacturing — The Newest Model

Lean manufacturing is the newest method of manufacturing. It resulted from a thorough study of the worldwide auto industry. The global manufacturing industry, specifically in Asia, has been applying pressure on U.S. manufacturers. By using the lean manufacturing philosophy, other countries utilize highly skilled workers who rotate jobs/work stations.

This method uses a very small quality control area, a contrast from the mass production model. This technique is possible due to quality



Several production elements should be examined: how a product gets to the production area, how to design labor flow, support equipment, etc.

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control at each sub-station. A result of lean manufacturing is high productivity and high quality. This has most frequently been utilized in the automotive industry and should also be employed in the greenhouse industry.

Lean manufacturing exhibits that one can produce a large number of varying products to meet all sectors of the market and still have high productivity. This disproves the common misconception of creativity versus productivity, which



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states that producing a large quantity of the same item equates an improved productivity.

Applying The Models

By applying the three models of production to greenhouse productivity, we can see how lean manufacturing can work well. Craft production entails developing one's own tools to fit each specific need. Products are not bought off of the shelf but are hand crafted and entail innovative solutions.

Mass production requires growers to "buy off the shelf." Currently, this is the method most often used but is becoming a concern from a productivity point of view. Oftentimes miscommunication between growers and vendors regarding parts needed results in wasted time and effort. In addition, many mass-produced products are imported and require a variety of specifications, oftentimes not to the United States' codes. These imported products cannot simply be bought at a local hardware store and depend on the vendor to acquire the part. Once again, communication of the growers' needs may become convoluted, resulting in wasted energy.

Another factor that complicates the mass production method is the worker. As was stated previously, this process does not require highly educated or trained employees and has a high turnover rate. Yet, what is necessary is that employees are trained to work machines, can do basic maintenance and are able to articulate the problem to a vendor for expedient maintenance.

Finally, one must look at the benefits of lean production to fully understand why this method is taking over the manufacturing industry. Based on a teamwork system, a diverse training methodology is employed so that each worker knows and understands several elements of production. When a problem arises, it can



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Learn More About NGMA

The National Greenhouse Manufacturers Association (NGMA) is a professional trade organization for the manufacturers and suppliers of greenhouses and greenhouse components. Founded in 1958, the NGMA membership brings together some of the most experienced and knowledgeable manufacturers in the industry and is dedicated to the interests of the greenhouse industry.

It represents all segments of the greenhouse marketplace — manufacturers, suppliers and distributors — to enhance the effectiveness of each in a coordinated effort to promote and advance the entire industry. The NGMA exists to serve growers with information, publications and access to companies that manufacture structures and greenhouse components. To learn more, visit www.ngma.com.

either be fixed in house or properly articulated to the vendor.

In today's greenhouses, several aspects of managing operations must be examined and integrated. Growers must identify needs and appropriate technology. For example, when a new piece of equipment is purchased, a change of flow is inevitable. Several elements should be examined: how a product gets to the production area, how to design labor flow, support equipment, etc. A trained staff is necessary to make sure all of these elements are still working. **GPN**

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Author's note: This article was brought to you in part by the National Greenhouse

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