

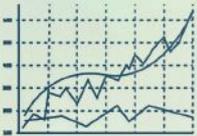
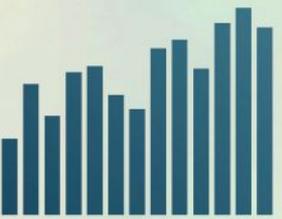
PMM

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& Manufacturing

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ROAD TO RECOVERY

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SURVEY SHOWS OPTIMISM FOR RECOVERY



Grand Traverse Plastics

By Bruce Geiselman, Karen Hanna and Lynne Sherwin

WHEN PMM PUBLISHED the results of its first survey of machinery buying plans in January 2020, we remarked on the optimism reflected in the 60 percent of respondents who planned to buy new primary equipment in the upcoming year. The industry's future looked bright.

Just a few days into the new year, the World Health Organization made its first public statement about a mysterious spate of pneumonia-like illnesses in Wuhan, China, and soon every prediction for 2020 went out the window.

A year later, that optimism has rebounded. In PMM's second annual survey, conducted in October, 61 percent of respondents (83 out of 136 total) plan to buy primary processing equipment in 2021, essentially equal to the pre-pandemic figure.

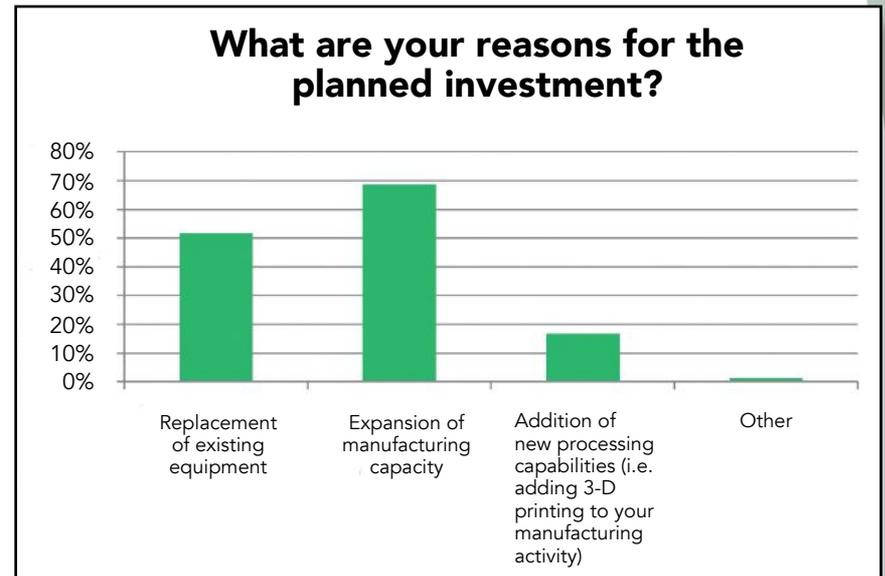
Companies said new equipment is needed to expand capacity (69 percent), replace existing equipment (52 percent) and/or add new processing capabilities (17 percent). And an overwhelming 73 percent of respondents expect their business to improve in 2021, while only 2 percent believe it will be worse.

Perc Pineda, chief economist for the Plastics Industry Association (PLASTICS), said the survey results are "consistent with our projections on plastics machinery production forecast for next year, which is going to increase by 3.4 percent year over year."

He continued, "I think one of the things that we overstated in our analysis of COVID is how long it will take for the end markets to recover. But after May and June, it was pretty clear that the overall drop in activity in some of the key markets was actually overstated. So, we have a bounceback in housing, a bounceback in the auto market and health care, of course, and consumer packaging stayed healthy."

PLASTICS' Committee on Equipment Statistics reported third-quarter shipments of injection molding and extrusion machinery in North America grew 15.8 percent, following a 4.5 percent increase in the second quarter. Compared with the third quarter of 2019, shipments were 4.6 percent higher.

Pineda saw the optimism reflected in the survey and in PLASTICS' forecast as "a combination of an economy



that's going to bounce back, and also the role that plastics play and continue to play in the containment of COVID-19. And [if] we're assuming that economic recovery continues, then the probability of an upward trend in machinery sales ... is much, much higher."

The majority of respondents, 60 percent, said their companies utilize injection molding, while 28 percent are involved in making or repairing molds and tooling. Additive manufacturing, blow molding, film or sheet extrusion and recycling each represented 13 to 15 percent of processes performed by respondents' companies. Thermoforming; pipe, profile or tube extrusion; and compounding each represented 7 to 8 percent. (Respondents could select more than one process.)

Forty of the 136 companies (29 percent) reported annual sales revenue of less than \$5 million, and 39 companies between \$5 million and \$25 million; 18 percent said their annual sales topped \$100 million.

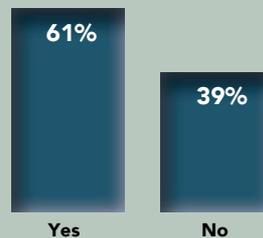
Respondents were divided on the effects of the pandemic on their businesses. Thirty-two percent said business had improved, 29 percent said it had suffered and the remainder said there had been no effect. The crisis did change some companies' machinery purchasing plans in 2020; 39 percent of respondents postponed buying new equipment, and 7 percent canceled their

investments. But 23 percent said they bought more equipment in 2020 than originally planned, to meet demand.



Pineda

Do you plan to buy primary processing equipment in 2021?



INJECTION MOLDING ON THE REBOUND

Though the automotive market took a hit early in the pandemic, the rebound has been strong enough to warrant new equipment purchases for Grand Traverse Plastics in Williamsburg, Mich., an injection molder of precision components, largely for the auto industry.

"We bought a big piece of equipment earlier in the year just to replace an aging piece of equipment, which was scheduled. But then we recently bought a new 900-ton to accommodate some growth," said Jeff Ignatowski, VP of sales and marketing. "The machine, luckily, they had in stock. And they said, 'If you don't take this one, we don't know when we'll have another one available.'"

He said the company faced extended lead times for acquiring the robot and auxiliary equipment to complete the work cell. "We try to standardize our equipment as much as possible — in our case, we prefer Engel machines and

Continued

Machinery-Buying Survey

Yushin robots. The 900-ton was an Engel machine, and we did outfit it with a Yushin robot, but these days, we're looking to potentially compromise that strategy a little bit just because we can't get things."

For 2021, he said, "we were looking for another press to handle the influx of business, but we're struggling with the lead times on new equipment, which we're being quoted as 26 weeks."

He believes the increase in business is "a combination of the COVID situation as well as demand. For a lot of us, I think the market is strong."

Eighty-two of the 136 survey respondents utilize injection molding, and 57 of them plan to buy primary equipment in 2021. Sixty of the companies plan to buy auxiliaries and 49 will invest in automation. Twenty-two purchased more equipment in 2020 due to the pandemic.

Arburg President Friedrich Kanz voiced optimism for the industry, which spent 2020 relying on surging demand from the medical sector. He is expecting to see some growth in automotive.

"I don't expect sales to go through the roof, but I expect greater sales activity and investment by automotive suppliers will increase in 2021 as automotive companies try to catch up on production and launch new models," he said.

Arburg, like other OEMs, reported that medical parts makers made up its strongest sector in 2020. Kanz suggested that trend might have staying power.

"First of all, it seemed to be driven by the need for personal protective equipment, then testing — pipettes, for example — and now certain components for packaging of vaccine coming out soon," he said.

Automation engineer Kevin Killam of Nolato Contour, an injection molder of medical and pharmaceutical components and devices in Baldwin, Wis., reported an increase in business in 2020 due to the pandemic, with "higher volumes of ordered parts related to COVID testing [and] new government-funded programs due to COVID-related item needs."

The company's machinery buying plans for 2021 have "increased greatly" to meet current and incoming programs, with sales of its medical products expected to be high. The company expects to spend \$5 million to \$10 million for primary equipment and more than \$100,000 each for auxiliary and automation equipment, including Arburg

injection molding machines, automation cells, mixers, conveyors, dryers, vision systems and more, Killam said.

One leading supplier of injection mold technologies, as well as automation, is starting to see business pick up.

"We're very busy. We've seen a big pickup in business through the fall, particularly in November," said Jordan Robertson, VP of business development and marketing for StackTeck, based in Canada. He believes trends in mold purchases reflect the state of the economy.

The pandemic boosted business in some markets, as people stocked up on essential goods.

"With more people spending more time at home, there's a lot of products that are delivered in plastic packaging to the shelves in the essential stores that have increased in volume," he said.

Demand for medical parts and food packaging spurred brisk sales of presses in 2020, said Boy Machines President Marko Koorneef. But he believes those markets are saturated and expects the pandemic's influence on his business will wane.

"There's going to be an excessive amount of machines that people are going to look for, 'What else can I make in this machine?'" he said.

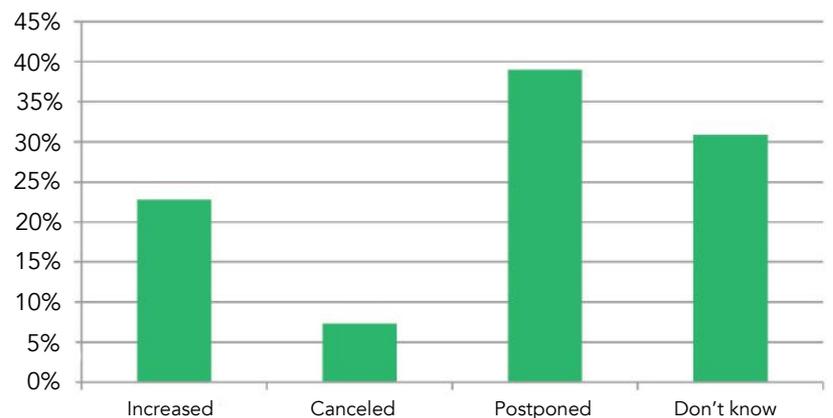
Other markets — including household goods, construction and vehicle manufacturing — offer potential in 2021 and beyond for injection molders, said Paul Caprio, president of Engel North America. "As we see people investing in their homes, there is a significantly higher demand for a wide variety of products such as bins, storage components, household appliances and building materials for construction," Caprio said.

He also sees growth in recycling and the development of electric vehicles. "Even though these topics were not as visible in 2020, we are expecting the customers and the end-consumer market to demand sustainable solutions and a higher percentage of recycled content in products," he said.

The automotive market "seemed to struggle to thrive due to many different factors this year, including the pandemic," said Robert Dishman, VP of after-market services for Milacron. "On the flip side, emerging technologies among all-electric vehicles are rising in this sector, as numerous companies race to fill their new facilities with technologies and roll these out to consumers."

Ignatowski said a lot of the growth for Grand Traverse Plastics is in electric vehicles, with large programs coming in 2022-23. "I personally was kind of a skeptic, that this was just going to take

How has COVID-19 affected your company's new equipment purchases in 2020?



them forever to overcome the whole oil industry ... [but] from what we're hearing from General Motors and the other OEMs, I think it's going to be very significant moving forward."

BLOW MOLDING EXPANDS

Blow molders in the U.S. and Canada are having trouble keeping up with demand for bottles for household cleaners, disinfectant wipes and hand sanitizers, said Bruce Coxhead, CEO of Amsler, which specializes in PET stretch blow molding machines and auxiliary equipment. The Bolton, Ontario, company also is seeing growth in medical packaging.

"COVID hit, and then all of a sudden, all the bottle manufacturers and suppliers were just screaming to get capacity," Coxhead said. "I even sold machines that I had on my floor on a weekend at midnight for cash. Everybody has ramped up. They are maxed out in terms of bottles for both personal care and the industrial size, and that's affected the supply and demand of machinery."

Amsler's 2020 sales are expected to be double those of 2019, and similar growth is expected in 2021, he said.

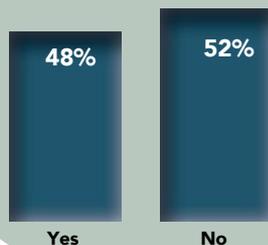
Of the 18 survey respondents who indicated their companies utilize blow molding, 13 said they plan to invest in primary machinery in 2021, and seven of those said they are increasing purchases over the prior year. Sixteen plan to buy auxiliary equipment, and 12 are investing in automation. Seven increased their purchases in 2020 due to COVID-19, and 11 said business improved during the pandemic.

"Everything happened in March, and it became apparent that hand wipes and cleaners and all of those sorts of things would become necessary," said Bob Jackson, owner of Jackson Machinery in Port Washington, Wis., which sells used, refurbished and new blow molding equipment.

Unit sales are up by 25 percent to 30 percent for 2020, he said.

"All of a sudden, every blow molder in the country began getting little machines to make two cavities, three cavities of hand wipes and canisters

Do you plan to buy new robots or other automation equipment in 2021?



Coxhead

Machinery-Buying Survey

just because they would be quick, it would be easy, and there wasn't a lot of investment. All of a sudden, all of the little machines that we had in inventory, six or seven of them, vanished overnight. It has been going onward and upward ever since.

"Every blow molder in North America is flat-out full, and every fellow that knows anything about blow molding in the world is busy and employed. There are relatively few machines left. The new machines take too long to build. Everybody is busier than all get-out in our entire industry. It's pretty amazing."

While blow molders initially grabbed up the small machines because they were readily available and relatively cheap, sales are now increasing for larger machines, Jackson said. Part of the reason is because areas of the economy that initially had been hurt by the COVID-19 pandemic, like automobile sales, are starting to recover.

"Everything is growing in blow molding, whether it's 55-gallon drums or automotive parts," Jackson said. "Car sales were off 12 percent at the early stages of 2020. Now, they're climbing back up and automobile companies are starting back up. There are 36 blow molded parts in a typical car."

Coxhead sees growth in juices, sports drinks, hard seltzers and cannabis-related products.

The company has a one-cavity lab machine at its headquarters to test prototypes for customers. In 2016, Amsler ran the machine occasionally.

"In the last six months, that lab machine has not stopped running prototype development bottles for new customers and existing customers," he said. "We're literally keeping that machine running, which implies more molds, more new products coming out, more development for us. That's sort of a telltale sign that it's not slowing down."

PACKAGING, PPE LIFT EXTRUSION

Twenty film and sheet extrusion companies participated in *PMM's* survey, and 11 of those plan to purchase primary equipment in 2021, 12 plan to buy auxiliaries and 12 automation. Of the 10 manufacturers of pipe, profiles and tubing that responded, seven plan to buy primary equipment, four auxiliaries, and three automation.

Entek, a maker of twin-screw extruders, expects about a 25 percent increase in 2020 equipment sales compared to 2019. In addition, the Oregon company anticipates an increase of 30 percent in 2021, said Linda Campbell, VP of sales.

"Actually, 2020 ended up being quite a good year for us," she said. "We are very close to hitting all of our budgets that we anticipated for the equipment side, and with that, we're going into 2021 feeling very positive."

The growth is mainly coming from packaging and home building products, she said.

"Takeout has become a staple versus going down and meeting your friends for a quick dinner," Campbell said.

In terms of building products such as decking, the increased demand was surprising, she said.

"Folks, I guess, are staying home more and doing more home projects, and, of course, building has not been that negatively impacted by COVID. Our customers that are in the building products are actually really struggling to keep inventory moving into the big-box stores."

However, not all of Entek's customers are thriving. The auto industry saw a severe dip in orders for a couple months in 2020. That impacted equipment sales that were in the pipeline, Campbell said.

Many of Entek's customers are still gun-shy regarding purchases.

"Our growth can be camouflaging quite a bit of pain out there," she said.

US Extruders, a West-erly, R.I., maker of single-screw extruders, reported strong sales.

"We've had a good year," President Bill Kramer said. "It looks right now, with our backlog, we should finish 2020 considerably higher than 2019, so it's a good growth year for us, which was not expected, but we've done well."

Kramer attributed part of the growth to increased production of nonwoven materials to make masks, and other medical supplies. "Just think of all the disposable materials that are consumed in a hospital — a majority of it is nonwoven," he said.

Graham Engineering, which sells extruders and blow molding systems, serves markets that support the COVID response and others that have strengthened because of the pandemic, said Michael Duff, VP of sales and service. He said sales were "very strong" for 2020 and expects that to continue.

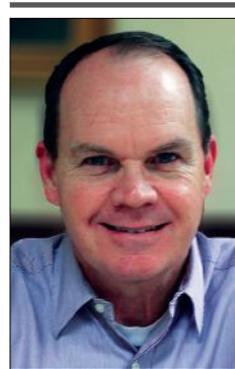
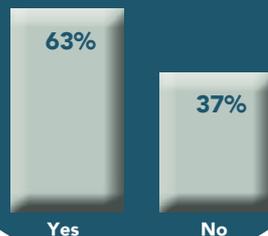
"While some of our end-use applications have suffered in the short-term — such as wire and cable, and automotive — I expect a rebound effect for them as the pandemic situation improves," Duff said. "Specifically, we have seen strong sales in the household chemical space, including disinfectant product packaging and antibacterial wipe packaging."

Graham had anticipated a drop in medical tubing machinery sales because of a reduction in elective surgeries during 2020 but demand grew for ventilator tubing. Other growth markets included takeout food packaging and plastic lumber.

Duff noted, "Another area where we have seen growth and predict further activity is in the area of life-cycle management, where our customers are taking advantage of changing production needs and choosing to upgrade equipment opportunistically."

Davis-Standard President and CEO Jim Murphy said extrusion equipment sales slowed in spring 2020 but began rebounding during the late summer and continued into the fall and winter.

Do you plan to buy auxiliary equipment not including robots or automation equipment in 2021?



Murphy

"When the economy really kind of put the brakes on in the spring — March and April — we definitely saw a slowdown in activity that really lasted through May," Murphy said.

He said the strongest markets have been rigid packaging and medical tubing and equipment. However, power distribution has been another strong segment; Davis-Standard sells extruders for manufacturing wire and cable. Other infrastructure areas — including pipe — also have been strong, and the automotive market is coming back.

Not all companies reported a sales boost. SML, an Austrian maker of film and sheet equipment, said 2020 sales were comparable to 2019.

"Worldwide sales were pretty much on a par with previous years, somewhat up," said Mark Jones, director of support services for SML North America Service. "There was very little change for us."

Much of SML's equipment is used to produce wrap and packaging for what most states deem "essential services," including PPE and food packaging, Jones said.

"Demand for the products and for the machinery that we produce was actually higher than normal," Jones said. "I think there has been a shift toward home deliveries. People don't go out to restaurants anymore. Restaurants tend to take big catering-pack-type units, which use less packaging per pound of product than consumer stuff does."

Some of Jones' customers in the U.S. have factories running at capacity and have expressed interest in purchasing equipment. "But it takes a while for that interest to translate into sales via trials and then contract negotiations and so on," he said.

Leistritz Extrusion, based in Somerville, N.J., expected a decline in sales in 2020 as some projects were delayed due to the pandemic, President and GM Charlie Martin said.

"We'll be down about 15 percent from last year, which was a record year," Martin said.

However, he sees opportunities in markets out of the mainstream. "There is definitely a trend toward sustainability, bioplastics and recycling," he said.

DEMAND UP FOR USED MACHINERY

Of survey respondents who plan to buy primary equipment in 2021, about half will invest at least a portion of their budget in used or refurbished machinery. One noted, "Many companies are folding during COVID, making used equipment available and affordable to well-capitalized companies."

Jackson said business at his company is booming.

"We're booked out through March ... in terms of rebuilds going on," he said. "It's just intensely busy. 2020 has been an extraordinarily successful year for every blow molder in North America and probably the world."

Continued

Machinery-Buying Survey

PLASTICS doesn't track sales of used machinery, "but we all know that acquiring used or refurbished machinery happens in industry all the time, particularly depending on where we are in the business cycle," Pineda said. "When the economy is expanding, for example, delivery time on equipment takes longer, because most companies can't make them fast enough. ... There's limited supply of secondhand stock available in the market."

Ignatowski confirmed the shortage of used equipment. "We thought, given the circumstances of what's going on, that that would start to open up, but we're having trouble even finding used equipment," he said. "In fact, one of our suppliers of used equipment called us and said, 'Do you guys have anything you want to sell?' We said, 'No, quite the contrary.'" The company found and bought a used Engel press in December.

Pineda said technology is advancing so quickly that used machinery can be too inefficient for today's requirements. Processors facing labor shortages must consider the technological enhancements available in newer equipment, and the trend toward incorporating auxiliary and automation equipment into a single cell, he said.

"Companies are using machines that are more than 10 years old, or 12 years old, it's really putting them behind the technological curve, particularly if you'd like to increase your productivity because of labor constraints. That will also lead to higher operating costs," he said. "And so, over the [next] five years, to 2025, we think that old machines would likely be replaced."

Arburg's Kanz said customers are increasingly asking for complete manufacturing lines.

"In addition to being able to provide high-technology molding machines, Arburg is selling more and more turnkey systems," he said. "We have a turnkey team in the U.S. that is building customized production cells for customers, and that was very important in 2020 because many people, especially in the medical market, were asking for more than a molding machine."

Entek also has benefited from offering a turnkey approach, Entek's Campbell said.

AUTOMATION FOR THE PEOPLE

The trend toward more automation was reflected in *PMM's* survey. Forty-eight percent of respondents plan to buy automation equipment in 2021, and of those, 60 percent are investing more than last year. Twenty-six respondents plan to invest more than \$100,000 in automation. One respondent commented that "it's getting very difficult to find workers."

Ignatowski said Grand Traverse Plastics is not quoting any jobs that require extensive labor because of staff shortages. The company plans to invest more than \$100,000 in automation in 2021, including five-axis robots as part of its standard work cell with an injection molding press, box conveyor systems, post-molding assembly and more.

"We've always had a strategy utilizing automation, both for any assembly requirements, but also for

the injection molding itself. But the driving factor isn't necessarily due to cost savings or labor shortage, although that is an issue with us right now," Ignatowski said. "Our philosophy is to use automation and control our tolerances, quality and part repeatability."

He added, "A lot of times there's a negative misconception regarding automation, that people criticize that it's being used to replace jobs. I see in our strategy, automation is our pathway to create more jobs because it allows us to be competitive and grow, and actually drives the need for additional hourly and technical positions."

One recent complication is that some factories are having to temporarily shut down production lines because, as COVID-19 infection rates rise, more workers are becoming sick, SML's Jones said.

"When people are out sick, there've been a couple of instances where the machinery goes down not because there's no demand for it, but because they can't find the people to operate it," he said.

Killam said Nolato Contour is investing more than \$100,000 in automation of assembly and machine tending in 2021, for cost savings as well as overall labor shortages and operators being off work due to COVID-19.

While the pandemic has caused problems for factories that have experienced outbreaks, labor issues caused by COVID-19 aren't top of mind for most plastics processors considering automation, Boy Machines' Koorneef said. Rather, it's the cost and convenience of robots and cobots that drive what he said is strong "ongoing demand."

"For \$30,000, you can have a cobot that does the same thing [as a person] in the assembly line. They can do the same stacking of cups in a box and pack it up. That's a \$30,000 investment for one time versus a \$30,000-a-year investment for an employee," Koorneef said.

Milacron predicts processors will continue to invest in automation and remote connectivity.

"The surge in demand is putting a strain on our customers for skilled labor in their factories. As a result, our customers are searching for automation cells and solutions, which has increased demand for our products serving these needs," said Ron Gulbransen, Milacron's technical product manager for auxiliaries.

Company officials predicted strong interest in Milacron's work cells outfitted with automation and remote-connectivity systems, which can expedite production start times, as well as changeovers, allowing manufacturers to increase capacity.

Medical-parts manufacturers want robotic systems to take on part assembly and other post-molding processes.

"In the short term, this social distancing has actually become a catalyst for more automated manufacturing," Pineda said.

"My sense is, if businesses are in tune to manufacturing of the future, I think they're moving



Kanz

in this direction of ... more robotics and automation, and machinery talking to one another. It's almost like this is the perfect time to start moving in that direction."

LOOKING AHEAD

As a new administration takes office, 46 percent of survey respondents expect the country's trade policy to benefit their businesses in 2021, 14 percent anticipate a negative influence and the remaining 40 percent don't think it will affect them.

"If history is our best guide, we know that politicians will say anything to get elected or re-elected. And that being the case, whatever pronouncements were made during the campaign may or may not come through," Pineda said.

It's not clear what the corporate taxes, trade and tariff policies will be under President Joe Biden. "It would be nice to have a continued low corporate tax in our economy, [because] then we can compete globally," Pineda said. "We are currently at 21 [percent]. And the global average is 24. ... It would be nice if we stay competitive on that front."

Coxhead credited President Trump's tariffs on Chinese blow molding machines for making his equipment more competitive in the U.S.

SML's Jones said the change in the U.S. administration may lessen the probability of higher tariffs on imported machinery, like his company's extruders manufactured in Austria. However, he said it is hard to say whether the new administration might impose some environmental taxes or restrictions that could affect the industry.

Martin said changes in tariff policies could impact Leistriz. Because of U.S. tariffs on many Chinese products, China imposed taxes on U.S. goods.

"It's both ways," Martin said. "We have a customer in China that's getting hit with an 18 percent tax for any equipment coming in from the USA."

"We would thrive as an industry if trade is fair, and tariffs are reasonable, and there's an even playing field and everyone plays by the rules," Pineda said.

Looking into 2021, Ignatowski said he felt uncertain about the economy and whether the level of growth was sustainable. "I'm concerned about another shutdown, although I think after the first, people understand the consequences would probably be devastating so they'd probably do whatever in their power not to do that."

Some opportunities for his company in 2020 came because of others "that weren't strong enough to withstand the first one, which is unfortunate for them and their employees. But if it happens again, I think there's going to be a whole 'nother level of companies that are not financially stable and will not be able to withstand a second round."

The timeline of vaccine deployment will determine how 2021 takes shape.

"The industry will need to continue to maneuver the challenges that COVID-19 presents until a vaccine is successfully distributed," said Engel's Caprio. "And there will, of course, be a 'new normal.' Whatever that looks like." 

For links to expanded stories on companies' outlooks for 2021 and related features, see plasticsmachinerymanufacturing.com/21203549.