

ANGULAR MOTION

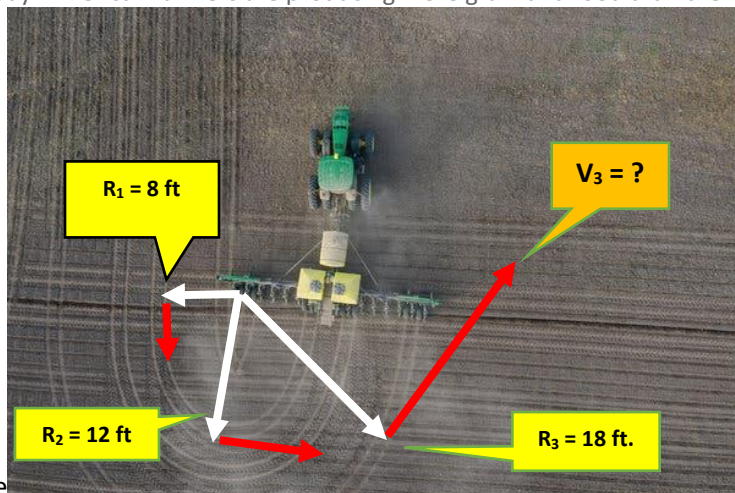
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Austin, Texas, USA, jpcise@austincc.edu & New York Times , May 23, 2019 by Patricia Cohen

Pain of Tariffs Tests Farmers' Faith in Trump: 'How Long Is Short-Term?'

The trade dispute with China has cost growers their No. 1 buyer, but they say the president is on the right course.

OSSEO, Wis. — From the start, President Trump's combative trade strategy toward China has carried the promise that short-term pain inflicted on farmers would be worth the longer-term gains for American producers, from agriculture to technology. As the trade war intensifies, faith in that proposition among the president's most stalwart rural fans is being tested more than ever. "How long is short-term?" Shane Goplin, a sixth-generation farmer growing soybeans and corn in west-central Wisconsin, wondered as he maneuvered his 16-row John Deere planter. China was the largest buyer of American soybeans until tit-for-tat tariffs all but halted the flow. And this month, souring prospects for a trade deal again sent prices tumbling. **(((Mr. Trump responded on Thursday by announcing a \$16 billion package to help those hurt by the dispute. The strategy may help shore up farmers' support for Mr. Trump before the 2020 election, but it leaves them with a perplexing question: What does success ultimately look like? Despite the strain on Mr. Goplin's family bank account and peace of mind, he backs the president's tactics. "I get why he's doing it," he said over the tractor's whir and beeps. "America has been bullied."** And if the trade war persisted through the election next year, he added, "I would be O.K. with that." Federal help is "very important," Mr. Goplin said. **The administration's previous \$12 billion package of emergency aid meant the difference between profit and loss on his soybeans.** Judging whether an agreement will prove worth the cost, though, is trickier to calculate. Several farmers said that if Mr. Trump declared he had struck a good deal with China, they would take his word for it. "I don't think he'll flinch until he gets what he wants," said Lorenda Overman, a crop and pig farmer in eastern North Carolina. "He doesn't mind playing hardball." Other growers suggested that a bump in soybean prices or a drop in the country's trade deficit with China would signal a victory. Mr. Goplin planting corn, which requires 16 to 18 hours of work in a day. American farmers are producing more grain and food than the world market can absorb.



INTRODUCTION: At left a farmer's tractor cultivator makes a counterclockwise 180° turn in 15 seconds.

QUESTIONS: (a) Find tangential velocity's: V_3 , V_2 , V_1 At radius of turns: R_3 , R_2 , R_1 ? Show calculations clearly. Tangential Velocity vectors shown in red. (b) Find angular velocity(ω)for each radius?

HINTS: $V = X/t$, $X = \text{half a circle circumference} = 2\pi R/2$, $V = R \omega$

ANSWERS: (a) $V_3 = 3.77 \text{ ft./s.}$, $V_2 = 2.51 \text{ ft./s.}$, $V_1 = 1.68 \text{ ft./s.}$, (b) $\omega_3 = \omega_2 = \omega_1 = 0.21 \text{ radians/s.}$

Mr. Goplin planting corn, which requires 16 to 18 hours of work in a day. American farmers are producing more grain and food than the world market can absorb. Like other farmers throughout the Midwest and South, Mr. Goplin worries, as the standoff with China continues, that soybean producers like Brazil and Argentina could permanently displace American suppliers. That is a risk, he said — like the extreme weather, tight credit and volatile prices that have whipsawed farmers' fortunes over the past decade. And with declining profits, heavier-than-normal debt loads and [rising farm bankruptcies in the Midwest](#), Mr. Goplin, 45, understands that for some growers, it is already too late. He had finished planting 500 acres of soybeans this month, a few days after the president [announced on Twitter](#) that he was imposing additional tariffs on China.