**1966 4020 and 1966 5020 Kinzenbaw repowers were recently sold.**

# Rare Kinzenbaw Repowers Resold

Two rare Kinzenbaw repowers have changed hands for only the second time. John Kahrhoff and his son Chris posted a for-sale ad in Heritage Iron earlier this year for a 1966 4020 and a 1966 5020. It didn't take long before both were snatched up by the same buyer.

"We each had at least 10 calls, and they were sold within a couple of days of the issue hitting the mailboxes," says Chris. "We didn't post a price, but we had ideas from talking to others about what they might be worth."

Conversions done by Jon Kinzenbaw are part of Midwest ag history. The conversions and conversion kits sold by Kinzenbaw helped lead to Kinze Manufacturing and its many innovations in farm equipment. FARM SHOW has published a dozen articles about the company, starting with Vol. 1, No. 1.

John saw an ad for the tractors in AgriNews in 2005. The ad stated that they'd been repowered with Detroit diesels but didn't specify by whom.

"I called the seller up, and he told me they were Kinzenbaw repowers," recalls John. "They belonged to his dad, who was a good friend of Kinzenbaw. Kinzenbaw had done both repowers, putting a 6V71 Detroit in the 4020 and an 8V71 Detroit in the 5020."

Kahrhoff purchased both tractors, interested in the Detroit conversions and their link to Kinzenbaw. In 2010, he displayed the tractors at the Half Century of Progress show in Rantoul, Ill. Kinzenbaw had a booth there, and Kahrhoff stopped by to visit with him.

"Jon told me to park my tractors by his tent, and we visited," says Kahrhoff. "He remembered doing both the repowers. He told me the 5020 was one of about 150 he had done in his shop, but the 4020 was one of only 23."

Over the years, the tractors saw some use, including at shows and for plowing demonstrations. At one show, the 5020 pulled 8-18s at a depth of 8 in.

"It buzzed along with no problem," says Kahrhoff. "The first year I brought them to Rantoul, people went crazy over them."

The decision to sell wasn't an easy one, but they didn't quite fit into Kahrhoff's collection of over 40 John Deere 2-cylinders.

"I have a big shed, but they were in the way. Neither my son nor son-in-law was interested in them, so I put them up for sale."

Kahrhoff says the new owner is having them completely restored and plans to display them as part of his collection of large four-wheel drives. Perhaps when he does, the Kinzenbaw repowers will be back in FARM SHOW for another Kinzenbaw story.

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# Research Yields Increase In Strawberry Plants

NCSU PhD student Moein Moosavi is revolutionizing strawberry starter production. He's developed a process to produce 1,200 daughter plants per square meter, compared to 74 to 98 with traditional in-field production. Moosavi uses indoor hydroponic propagation under artificial lighting.

"The U.S. is the second-largest producer of strawberries in the world, worth over $2.3 billion annually," says Moosavi. "All those farms need to start with healthy planting materials (daughter plants or tips). Right now, most of our planting stock comes from open-field nurseries in California, where plants are grown in soil and fumigated with methyl bromide to control diseases."

He explains that the fumigant is under strict regulation. At the same time, open field propagation is labor-intensive. Flowers need to be removed, and daughter plants pinned to the soil.

In Moosavi's system, the mother plant is on top, and the stolons hang down. They never touch soil and are pest-free. He precisely controls growing conditions and reduces variability caused by weather, pests and diseases.

"The main focus of my research is figuring out how to encourage those stock plants (by adjusting light duration, intensity, spectrum and other signals) to make fewer flowers and more stolons and daughter plants," says Moosavi.

High-quality, vigorous, disease-free and more uniform daughter plants can lead to better field establishment, higher yields and a lower risk of disease, explains Moosavi.

"This is important to North Carolina growers as it could reduce reliance on distant nurseries and imported plants, giving growers more local or even on-farm options for producing their own planting materials," he says. "North Carolina is one of the top three strawberry-producing states in the U.S. We've got around 2,000 acres in plasticulture production."

The protocols he developed for daughter plant protection could well lend themselves to breeding new cultivars with the potential to shorten breeding cycles. Primarily, he sees them being utilized at the plant stock distributor or nursery level.

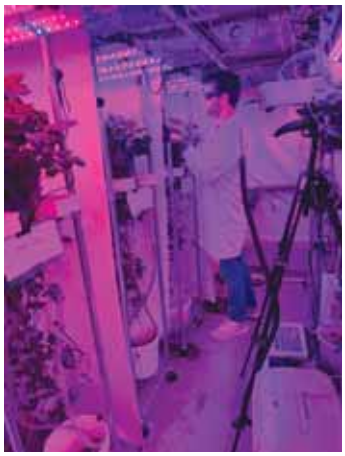
However, they may also be helpful for small growers.

"Some aspects, like figuring out optimal lighting strategies, could also help small-scale growers who want to produce their own transplants or maintain elite mother plants for small-scale, on-farm production."

The American Society for Horticultural Science (ASHS) recently named him a recipient of the 2025 ASHS Outstanding Graduate Horticulture Student Award. He's also received several other recognitions for his graduate student research.

Moosavi was raised on a family farm with a large garden in eastern Iran. Experiencing the difficulties of farming in the drought-prone region, he chose to study horticulture and controlled-environment agriculture. While his current project is focused on strawberries, it may have even broader applications and benefits.

"Other high-value crops face similar challenges in producing disease-free, vigorous, uniform and high-quality planting stock," says Moosavi. "With some refinement and additional research, the strategies we developed for strawberries could be applied to improve propagation efficiency and plant health in other crops."



**Moosavi working with strawberry plants under UV lights.**

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# Technology Holds Promise For Apple Orchard Thinning

**Felix meter's prediction accuracy exceeded 90% within three days of application.**

Apple growers often use chemical sprays to thin their trees and reduce flower numbers. Without intervention, trees will produce too many flowers, resulting in small, unmarketable fruit. Chemical thinning boosts apple size and quality, helping to maintain crop consistency.

The grower's challenge is assessing how effective thinning is after spraying, since often, additional applications are needed.

Former North Carolina State University researcher Jimmy Larson recently completed trials using a handheld spectrometer to predict fruitlet abscission potential and provide more accurate thinning spray information. The research was conducted under the guidance of NC State Assistant Professor Tom Kon.

"We used a Felix hand-held spectrometer at harvest to determine the brix and dry matter content of fruitlets," Larson says. "We used this information to predict abscission. The goal was to identify how many fruitlets will fall off, so growers will have a more precise idea of the numbers desired at harvest."

To measure the fruitlets with the spectrometer, fruitlets were placed calyx end down on the lens. A beam of light was directed at the fruitlet, which absorbed it and reflected it to the meter. The meter measured the light reflectance in the visible and near-infrared portions of the light spectrum to estimate factors such as chlorophyll and water content.

The trials began in 2021 and were completed in 2023 using numerous apple varieties from orchards in North Carolina, New York and Michigan.

Data indicated that persisting fruitlets displayed lower reflectance, were typically larger, contained more chlorophyll, and absorbed more light compared to abscising fruitlets. They also showed higher estimated water content.

The team compared their findings to the standard fruitlet growth rate model, which tracks changes in fruitlet diameter over time. Although accurate, this method is labor-intensive, requiring repeated caliper measurements, and in the Southeast, it only predicts fruit set about nine days after spraying. A technique using a single sampling period and a spectrometer could provide earlier thinning predictions and be more practical. Currently, farmers rely on their experience, fruit growth or size distribution models, and visual cues like coloration, which appear roughly 14 days after thinning.

The Felix meter's prediction accuracy exceeded 90% within three days of application.

"Of course, the main drawback of this technology is that we can only measure a single fruitlet at a time," Larson explains. "To make a real advancement, we need an engineer or an automation company to take the findings and develop the technology into something more efficient, like a small tractor or ATV-mounted camera system to drive throughout the orchard and collect rapid measurements. Hopefully, something like this can become a reality."

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