

# Sprayer Ownership vs. Custom Application: Evaluate the Trade-offs

**Helping your customers weigh the pros and cons of investing in a self-propelled sprayer versus relying on a custom applicator requires evaluating factors beyond the number of acres they farm.**

## Checklist

"There are several critical factors besides farm size when comparing sprayer ownership with custom application," says Michael Langemeier, Purdue University ag economist. "Obviously, there's the total trips across each acre and the number of hours by task. Then factor in the life of a new or used self-propelled sprayer and its value at the end of its useful life."

Langemeier suggests using Machinery Pete or other online buying resources to gauge sprayer pricing, hours and potential salvage values. "It's also helpful for dealers to share how long sprayers will last given acres sprayed annually," he says.

A significant trade-off with sprayer ownership compared with custom application is finding labor. Langemeier says it takes at least one employee or family member dedicated to the sprayer, mobile water/chemical tender and crop scouting, because some applications occur during tillage, planting and harvest. In addition, in-season weed control, disease and insect control, and nitrogen applications or cover crops are less effective if not applied in a timely manner.

Conversely, sprayer ownership with dedicated labor can provide better timeliness and attention to detail compared with a busy custom applicator. "If you're accessing a fairly large farm, owning a sprayer that

can optimize timing is a powerful business investment," Langemeier says.

For example, consider a decision on whether you need to use a fungicide. "Our Purdue agronomists always talk about the importance of field scouting to ensure the presence of leaf diseases," he says. "They can't call a custom applicator and schedule an application for tomorrow. It may be sometime next week. There's no wait time when they own a sprayer."

## Run scenarios

Langemeier emphasizes the importance of pricing out numerous business scenarios when trying to justify a sprayer investment. For example, what happens if interest rates hit 9% or they drop to 7%? What if labor takes two employees instead of one? What if they add a granular applicator? How much custom business (added time and expense) might fit without interfering with existing acres?

Evaluate custom rates as both a cost (if they hire a custom applicator) and potential income (neighbors hire them to spray) in the decision-making process. If there are no actual custom application costs from last year for comparison, ballpark your scenarios by using rates compiled by Iowa State University. According to the 2022 Iowa Farm Custom Rate Survey, custom charges for self-propelled spraying ranged from \$5



to \$12 per acre, with an average of \$7.80 per acre and a median charge of \$8 per acre.

If they're considering a high-clearance sprayer to replace aerial application, custom rates ranged from \$8 to \$11 per acre, with an average of \$9.70 per acre and median charge of \$10 per acre. New numbers for 2023 will be published in mid-March.

On the flip side, hiring a qualified custom applicator generally removes many economic and agronomic risks like drift and misapplication, product usage and certifications, equipment costs and maintenance, detailed record-keeping, and time and labor management.

Accelerated depreciation offers tax advantages to help pay for the machine, especially when coming off a strong income year. "This aspect shouldn't be the driving reason for purchase, as a sprayer decision should be based on economic efficiencies it can create for the overall business," Langemeier says. "And that benefit must be calculated against custom application costs that are completely deductible."

## New technology

Remember to price various sprayer add-ons and technologies. What is desired versus what will pay for itself, like nozzle shutoff and auto-steer?

One of the latest developments is the technology that distinguishes between the weed and the crop, only turning on to spray the weed. "While it's currently very expensive, if they can cut herbicide input costs by 70%, it is worth considering because they gain environmental benefits as well," Langemeier added.

## For more details on calculating machinery costs, check out these links:



**Self-Propelled Spraying: Machinery Ownership Vs. Custom Hire**  
(2017, Purdue University)



**Benchmarking Crop Machinery Cost and Investment**  
(2021, Purdue University)



**Iowa Farm Custom Rate Survey**  
(2023, Iowa State University)



**Estimating Farm Machinery Costs**  
(2015, Iowa State University)



**Self-Propelled Harvesting and Spraying: Machinery Ownership Versus Custom Hire**  
(2015, Iowa State University)

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