

NAVIGATING SPRAYER PRECISION OPTIONS:

From Basic to Advanced Technologies



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FACTORS TO CONSIDER

Utilizing precision agriculture

The spray application industry goes hand-in-hand with agricultural precision technologies. Precision agriculture is a collection of cost-effective technology that helps manage in-field variability. Over the last 15 years, precision agriculture has made significant advancements that have helped boost the spraying industry. With technology constantly evolving, it is easy to get lost in the many options.

Your goal in the sprayer is to create more efficient and effective spray applications that will lead to a higher crop yields while increasing application effectiveness, decreasing costs and increasing your operation's overall return on investment (ROI). Whether you are interested in using section control on your booms, field computers or simply an app you can download on your mobile device, there are a number of ways to utilize precision agriculture to suit your needs:

- Field computers
- Guidance systems
- Application controls
- Boom controls



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Assessing your situation

Before you adopt new precision agriculture practices, you should evaluate your situation. Basing decisions on your current field sizes, your future goals and what technologies you are already using can make choosing your next steps much easier. To find your ROI for precision technology, you need to determine your current per-acre spend. This can include custom application, the cost of your self-propelled sprayer and all input costs such as herbicides, insecticides and fertilizers.

Over-application leads to revenue loss due to the added cost of the extra chemicals. Overlap in your fields can be greatly reduced with a variety of precision ag technologies. Precision for your self-propelled sprayer is especially important because you are in the field multiple times a year with the sprayer, so extra costs are calculated on sprayed acres not just planted acres. With these considerations, it will be much easier to determine the cost-benefit analysis of adding or updating new precision technology to your operation. When exploring precision technologies, start with the basics and then add on as you feel comfortable.

Field computers functions

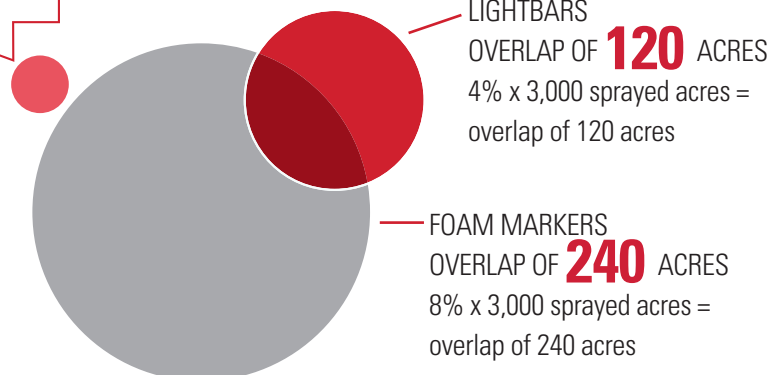
Today's self-propelled sprayers offer far more comforts than those of just a few years back. They are designed for full visibility of your booms and offer fully integrated precision options that are specific to spraying; the precision options are ergonomically laid out in the cab for maximum comfort and productivity. Many pull-behind owners have to retrofit their precision spraying equipment into a tractor that is generally not as comfortable as today's self-propelled sprayer. This combination presents a long day of bouncing, reaching and straining as the operator tries to keep an eye on the booms while working the precision equipment and driving the tractor.

Choosing a guidance system

Guidance systems or Global Positioning Systems (GPS) serve as the backbone of most precision agriculture technologies. Many of the other tools available would be useless without the use of a guidance system. Guidance systems range in complexity from foam markers to more advanced systems which allow you to use auto-steering, yield monitoring and boom section controls.

AUTO-GUIDANCE
OVERLAP OF only **30** ACRES
0-1% x 3,000 sprayed acres =
overlap of 0 to 30 acres

Overlap Calculations from Kansas State Ag Manager Tool



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- Lightbars are a step up that allows an operator to visualize his or her position compared to previous passes. This system measures when your position diverges from the original path and helps guide the operator back on track. Use of a lightbar system will cut down on overlapped passes or missed areas.
- Auto-guidance options are at the higher end of precision investments. They are controlled with either an electro-hydraulic system or a mechanical steering device. They include the same basic principles of navigation aids, but allow the machine to automatically steer the vehicle back on track.

According to Kansas State University's Ag Manager decision tools, it is safe to estimate that the use of foam markers results in approximately eight percent of overlap in the fields and lightbars result in about four percent overlap. An auto-guidance system is estimated to have less than one percent overlap. When considering the cost of upgrading your precision technologies, you need to calculate your sprayed acres, not just your planted acres. For example, if you plant 1,000 acres and you plan to spray three times this year, then your sprayed acres equals 3,000 acres.

Using application controls

Application controls will help you cut down on input costs and improve overall spraying ROI. Designed to help the operator cut down on over- and under-application, this is an area of precision agriculture where you see some of your better returns on investment. Ranging from flow meters to spray consoles and valves, your application controls will help you apply accurately and efficiently. Flow meters gauge the rate at which liquids flow through the wet system and provide great accuracy to ensure that you are spraying the application you intend to spray. A variety of control valves are available to ensure you are getting the correct flow from your sprayer.

Boom control features

Greater boom control, with height leveling, section control and individual nozzle control allows you to more accurately apply your chemicals while decreasing your risk of over- and under-application. This in turn results in a more cost-effective application which decreases your input costs and increases your overall profits.

Fields are rarely the perfect size and shape. To calculate how boom section control can help, you need to factor in the cost of spraying additional areas that you do not want to spray and the concern of spraying outside of your targeted areas. Automatic section control will allow you to cut down on spraying in "no spray zones" and can be connected to field computers and GPS.

The automatic boom height control system is a hydraulically powered system that allows you to choose between three systems for both pre- and post-emergent applications.

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Mobile apps

Increased mobile usage in the field provides more technology at the operator's fingertips. Specific to spray applications, TeeJet provides an app to assist in nozzle selection. Trimble created the "Connected Farm" app to assist with GPS and collection of in-field data. Other apps help when mixing chemicals in your product tank or help remind you of chemical use regulations.

Designed to work with your other precision ag technologies, mobile apps are often free or available at low cost. Long gone are the days of counting rows and looking for problem areas in your fields that need extra attention with fertilizers. Now computers and guidance systems are making it easier than ever to track and custom manage problem areas in your fields. While many precision technologies were first developed with seeding in mind, technology uses have broadened to include fertilizer, pesticide applications and adjustable rate controls.

Summary

Whether you are up-to-date with the latest technologies or just getting started with basic precision features, it can be of great value for you to stay informed of the evolving technology. Staying informed about precision agriculture advancements will help you decide which options are best and will deliver the highest ROI for your operation.

Looking to get additional information or have any questions?
Contact service@etsprayers.com to talk with an
Application Specialist today!

All model year 2018 Apache Sprayers are available with optional ISOBUS-ready wiring in lieu of factory installed field computers. Refer to your specific precision agriculture product documentation for compatibility information. Equipment Technologies factory installs all field computers using CAN-BUS wiring and protocols.

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