

## Automatic Section Control (ASC) Technology for Planters

### Introduction

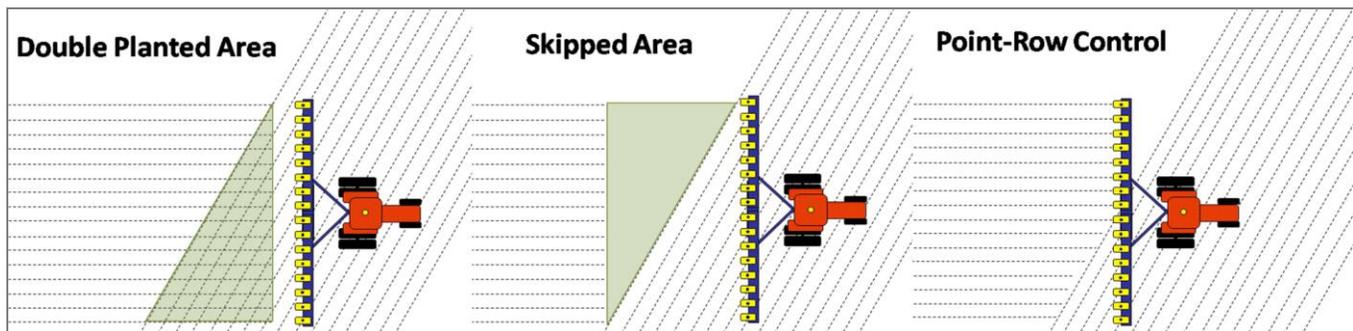
Automatic section control (ASC) is a precision agriculture technology that has been readily adopted by producers due to its potential savings. Currently, equipment manufacturers and third-party companies are offering systems that control sections and/or rows on planters. Simply, the technology turns planter sections or rows **OFF** in areas that have been previously planted or **ON and OFF** at headland turns,



point rows, terraces, and/or waterways. **Figure 1** illustrates an example of a manually controlled planter versus a planter equipped with ASC technology on a per row basis. Today, most manufacturers provide this technology as an option on new planters. However, some older planters can be retrofitted with this technology but one should consult the manufacturer or third party vendor to determine if ASC is compatible with your equipment.

#### INSIDE THIS PUBLICATION

- Benefits of ASC for your farm
- Required components, installation points, and pre-season checks.
- List of companies providing ASC components or complete systems.



**Figure 1.** Illustration of individual row control for a planter to reduce overlap and skipped areas. The technology improves planting efficiency while reducing the amount of planted seed.

### Benefits

A recent study at Auburn University indicated **input savings from 1% to 12%** for each pass across a field when using ASC (guidance savings were not considered in this study). This study indicated that on average a **4.3% savings on seed cost** could be observed for a farm while some operations could see as high as a **7% savings**. Savings are dependent upon field shape and size with the highest benefits occurring in small, irregular shaped fields or fields containing conservation management structures such as grass waterways and terraces. **Generally, ASC technology can pay for itself within 2 years.**

Benefits of ASC technology can include:

1. Reduced overlap (minimizing double or triple planted areas) leading to savings on seed cost
2. Improved overall planter accuracy
3. Improved environmental stewardship
4. Increased operator efficiency (especially at night)
5. Reduced operator fatigue by not having to manually turn ON or OFF planter

**The benefits stated above can even be increased if GPS-based guidance is used in conjunction with ASC.** This combination will increase planter accuracy resulting in larger savings and potential yield gains.

## Components and Operating

The cost for this technology generally starts around \$2000 but depends upon existing technology and equipment you have in-house. Please consult manufacturers for the necessary components and cables. At minimum, you must have the following components:

1. GPS/GNSS receiver – we recommend using either Real-Time Kinematic (RTK), Trimble’s new RTX technology (+/- 1.5 inch) or decimeter level accuracy correction services such as John Deere’s SF2 or OmniStar’s HP for individual row or control or grouping rows into sections.
2. Controller with software capable of automatic section control



**Figure 2. Example screen capture from a display showing a coverage map when using Automatic Section Control technology on an 8-row planter.**

3. Row clutches (pneumatic, electronic, or hydraulic)



(a)



(b)

**Figure 3. Examples of available row clutches that may be utilized on planters: Trimble / TruCount’s pneumatic (a) and AgLeader’s electric (b).**

4. Necessary cabling, wiring harness, electronic control modules, or other components (e.g. air tank, air compressor, and air valve modules for the TruCount system).

## Installation

**Check with your dealer or the manufacturer to determine if any planter modifications are required before installing the row clutches.** This point is particularly important on older models planters where one or two springs providing the necessary down force for a row-unit may need to be removed for some clutches. In no-till or similar operating conditions, reducing the available row-unit, down force may cause issues.

ASC can be setup for planters in two different modes; 1) individual row control, or 2) grouping rows together referred to as section control. The number of channels available (e.g. 8, 10, 24, etc.) indicates how many sections of individual rows can be controlled. Therefore, a controller with 8 channels of control cannot perform individual row control on a 12-row planter; some rows would have to be grouped together from a control perspective.

## Pre-Planting Checks

1. **Firmware Updates:** Update your controller and GPS/GNSS receiver to the latest firmware/software version. These updates are important to ensure you are getting the most benefit from your investment and to reduce potential problems during planting. Many manufacturers provide firmware updates during the winter months so either check their website or call your local dealer.
2. **Visual Inspection:** Check to make sure that all lines, cables, and wires are secured and in good working condition before heading to the field. Check to make sure there is no excessive gear wear for the clutches or anything is cracked or showing failure. We suggest making a close visual inspection of each individual clutch before the planting season.
3. **Clearance Issues:** With someone assisting, unfold planter to make sure all lines, cables, and wires are out of moving components or are not stretched.
4. **Proper Operation:** Power up your system and make sure everything is operating correctly. Manually switch on and off row control units and check that the controller is receiving a GPS/GNSS signal.

## In-Season Checks

1. **Cleaning Clutches:** Occasionally a clutch may require cleaning due to dirt or other foreign matter. They can be either quickly cleaned off using an air gun or disassembled, if possible, and cleaned. Check the manufacturer's literature for proper cleaning procedures.
2. **Connections:** Periodically check all electrical and/or air line connections during filling or normal maintenance procedures. This step can be a quick visual glance when walking around the planter which can help identify potential issues before they occur.
3. **Contamination:** Avoid getting water, liquid fertilizer, or other contaminants on connections.

## Additional References

For additional information see **ACES Timely Information Sheets:**

- Update on GPS: New Civilian Accessible Signals – L1C, L2C, and L5
- Update on GPS: Explanation of GNSS
- Application of CORS in Agriculture
- GPS Correction Service for Alabama

## Disclaimer

The mention of trade names and commercial products is for informational purposes and does not necessarily imply endorsement by the Alabama Cooperative Extension System.

## Available Systems and Technology

A partial list of companies providing ASC technology (last updated March 2011).

Company	System Name	Number of Section Controls
<a href="#">John Deere</a>	Swath Control Pro™ <b>Relevant Controller</b> <i>GreenStar™ 2 (GS2) or 3 (GS3) Display</i> <i>SeedStar™ XP or SeedStar™ 2</i> <i>GS2 Rate Controller</i>	Up to 16
<a href="#">Trimble</a>	Tru Application Control System <i>AgGPS FieldManager™</i> <i>AgGPS® FmX™</i>	Up to 24
	Field-IQ™ <i>CFX-750™</i> <i>AgGPS® FmX™</i> <i>EZ-Guide® 500</i>	Up to 48
<a href="#">AgLeader Technology</a>	AutoSwath™ <b>Relevant Controllers</b> <i>Edge with SeedCommand</i> <i>Integra with SeedCommand</i>	Up to 10 Up to 36 Up to 36
<a href="#">Kinze</a>	Vision™	Up to 36
<a href="#">Raven</a>	SmartRow™ AccuRow™ <b>Relevant Controllers</b> <i>Viper Pro</i> <i>Envizio Pro and Envizio Pro II™</i> <i>Envizio Plus</i>	Up to 8 Up to 16
<a href="#">DICKEY-john</a>	Auto Section Control with IntelliAg® <b>Relevant Controller</b> <i>IntelliAg 10" ISO VT</i>	Up to 24

## Row Control Units/Clutches

Company	Name	Style
<a href="#">John Deere</a>	RowCommand™	Electric
<a href="#">AgLeader Technology</a>	SureStop Electronic Clutches SureVac Electronic Shutoff	Electric Electric
<a href="#">Raven</a>	OmniRow™	Hydraulic
<a href="#">Trimble</a>	Tru Count Air Clutches Tru Count Electric Clutches	Pneumatic Electric
<a href="#">Richway</a>	Nozzle Stop™ (fertilizer control for planters)	Pneumatic

## Prepared by

John Fulton, Associate Professor and Extension Specialist, Daniel Mullenix, Research Engineer, Anora Brooke, Research Technician, Biosystems Engineering Department, Auburn University; Amy Winstead, Regional Extension Agent, Alabama Cooperative Extension System; and Brenda Ortiz, Assistant Professor and Extension Specialist.

ALABAMA A&M AND AUBURN UNIVERSITIES, AND TUSKEGEE UNIVERSITY, COUNTY GOVERNING BODIES AND USDA COOPERATING  
The Alabama Cooperative Extension System offers educational programs, materials, and equal opportunity employment  
to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.