Corn - Innovative Hybrids

**Corinth - Innovative Hybrids**

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<th>Trait package</th>
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<th>Poorly Drained</th>
<th>Stalk Strength</th>
<th>Root Strength</th>
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<th>Gray Leaf Spot</th>
<th>Goss' Wilt</th>
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<th>Corn on Corn</th>
<th>Fungicide Response</th>
<th>High Population</th>
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Scale of 1 to 10:
- **Best 1**
- **Better 3**
- **Ok 5**
- **Caution 7**
- **Avoid +9**
## Corn - Agronomically Sound

### DKC 48-12
- 98RM
- SS
- Consistent Performance
- Excellent Roots, and Drought Tolerance
- Quick Emerging and Seedling Vigor

### Croplan 4099
- 99RM
- SS
- Racehorse
- Excellent Yield Potential, Roots, and Stalks
- Likes Heat

### DKC 53-56
- 103RM
- SS or VT2/P
- Excellent Emergence and Seedling Growth
- Very Good Roots, Stalks, Drought, and Greensnap
- High Response to Population

### Racehorse
- 104RM
- SS or VT2/P
- Solid Roots and Stalks
- Excellent Goss’s Tolerance
- Goes on All Acres

### DKC 54-38
- 107RM
- SS or VT2/P
- Excellent Emergence and Seedling Growth
- Very Good Roots, Stalks, Drought, and Greensnap
- High Response to Population

### DKC 57-75
- 107RM
- SS or VT2/P DG
- Excellent Top-End Yield
- Excellent Drought Tolerance
- Excellent Stalks and Drydown

### DKC 57-75
- 107RM
- SS or VT2/P
- Outstanding Agronomics
- Adapted to All Production Systems
- Large Ear-Flex for Varying Populations

### NK N60F
- 107RM
- 3000GT or 3000GT
- Go Anywhere
- Great Plant Health
- Goes in All Environments

### DKC 57-75
- 107RM
- SS or VT2/P
- Very High Yield Potential
- Very Good Stalks
- Great Emergence with Heavy Residue

### NK N68B
- 111RM
- 3000GT or 3122 E-Z
- Performer with Great Plant Health
- High Yield Potential
- Go Anywhere

<table>
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<tr>
<th>Trait package</th>
<th>Relative Maturity</th>
<th>Droughty Soils</th>
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Scale of 1 to 10:
- Best 1
- Better 3
- Ok 5
- Caution 7
- Avoid +9
### Corn - Special Placement

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<th>Trait package</th>
<th>Relative Maturity</th>
<th>Droughty Soils</th>
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Scale of 1 to 10:
- **Best**: 1
- **Better**: 3
- **Ok**: 5
- **Caution**: 7
- **Avoid**: 9
## Corn - Traits / Pest Breakdown

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<th>Southwestern Corn Borer</th>
<th>Northern Corn Rootworm</th>
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<th>Corn Earworm</th>
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* modes of action

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1. Residue management, tillage, and soil drainage
   • One of the key steps in to reduce the yield penalty of continuous corn is to reduce the amount of residue. Aggressive fall tillage accelerates residue breakdown and the source of allelopathic compounds. Less residue can also result in a more favorable seedbed and better seedling emergence.
   • Strip tillage coupled with planter equipped with row cleaners has also been a successful strategy for some producers.
   • Fields that have good drainage, tiling, and low compaction and are good candidates for continuous corn as they will tend to have better residue breakdown, leaching of allelopathic compounds, and seedbed conditions.

2. Hybrid selection and seeding rate
   • Hybrids are screened for characteristics that make them suited for continuous corn (rootworm traits, seedling vigor, root and foliar disease resistance). An IAS agronomist can help you choose the best possible hybrid and trait package for your farms. As they match the hybrids for your field they can give you recommendations for planting populations to maximize profitability.

3. Fertility management
   • Nitrogen management is a critical step for a continuous corn producers. Continuous corn typically requires a higher N rate for an optimum yield than a corn-soy rotation. To correctly manage nitrogen for continuous corn producers, IAS recommends stabilizing an early nitrogen application, and following up with a side dress application later in the season. We also recommend foliar application while applying fungicide if increased nitrogen is needed.
   • For P and K IAS recommends grid sampling to get a base line of where your nutrient levels are. We recommend to follow the Variable Rate recommended by the grid samples. IAS also recommends adding Avail to your Phosphate application to allow the application to be more available the first year.
   • Starter fertilizers can help give corn on corn stands early boost, IAS offers several different products for each individual need such as 10-34-0, 7-18-6-2-.5 for Sulfur and Zinc, or 9-18-5.
   • High yielding corn –corn fields will mine the soil of P as well as secondary and micronutrients such as sulfur and zinc. To address sulfur and zinc requirements, IAS recommends Wolf Trax, Foliar options such as Smart Trio, Ammonium Thiosulfate for use with UAN, and Ammonium Sulfate for application with dry fertilizer.

4. Insect management
   • Corn rootworm pressure seems to be increasing the past couple of year across the Midwest regardless of the rotation or hybrids rootworm trait. This requires a vigilant plan for the continuous corn producer. To manage corn rootworms, IAS recommends using hybrids with at least one rootworm trait, if not two. We have also experienced the need to supplement the protection with a soil insecticide such as Force 3G, Force CS, Aztec, Smartchoice, Lorsban 15G, and Capture LFR.
   • In addition to the rootworm traits, our hybrids have the seed treatments to protect against wireworms, grubs, cutworms, etc that are more common in continuous corn.

5. Disease management
   • Many continuous corn producers have also found that foliar fungicides such as Headline, Quadris, and Stratego Yield applied from V4-V8 have greatly improved plant health, stalk strength and increased yield an average of 4-8 bu/acre.
   • Fungicides applied at VT-R2 have been consistent performers, especially for continuous corn producers in high production areas. IAS has seen an average yield response of 8-14bu/ac late season fungicide applications with Headline AMP, Quilt Xcel, and Stratego YLD.
Soybeans

**2035 RR2Y 2.0RM**
- Outstanding Yield Potential
- Good Agronomic Character
- Broad Set of Disease Resistance

**20-T6 RR2Y 2.0RM**
- Excellent Disease Ratings
- Excellent Defensive Ratings
- One of Highest Yielding Soybeans in Maturity

**2535 RR2Y 2.5RM**
- High Yield Potential
- Broad Defensive Platform
- Resistance to SCN, BSR, and Phytophthora

**26-P3 RR2Y 2.6RM**
- Great Cyst Resistance
- SDS Resistance
- Very High Yielding

**22-S1 RR2Y 2.2RM**
- High Defensive with Top-End
- 2 SCN Resistant Traits
- Go Anywhere Soybean

**2400 RR2Y 2.4RM**
- Blended Soybean
- Excellent Defense with High Yield
- Works East to West

Innovative Advanced Seed Treatment

Making the sound decision to start with the best varieties and hybrids for your operation helps optimize your crops potential. Ensure you are protecting that investment after it is in the ground by using a seed treatent. By treating the seed before it is planted, the stresses of slow germination and cold, wet soils can be mitigated.

**Benefits include:**
- Peace of mind if adverse conditions arise
- Enhance plant establishment
- Protect your investment
- Promote plant health and early season vigor
- Provides additional modes of action with emphasis on White Mold and SDS

Innovative Advanced Starter

**Innovative Advanced Starter** is a complete liquid corn starter containing a blend of orthophosphate and polyphosphate specially formulated to stimulate root growth, increase microbial activity and complex nutrients.

- Provides the ability to add yield enhancing products in furrow and increase disease prevention.
- Provides nitrogen, phosphate, potassium, sulfur, zinc and manganese to energize young plants for vigorous early growth.
- High quality liquid fertilizer that is clean and easy to handle. There are no solids present to plug equipment.
- Formulated with an optimum pH to deliver the highest level of micro and macro nutrients.
- Allows for early planting which means early dry-down. Midwest side-by-side trials give the edge to corn with starter by 1 to 2 points at harvest.
**Data Management Resource**

IAS is your information and data management resource. IAS has been a Precision Ag leader for more than 15 years with a very experienced Precision Ag team. Fertility management is the foundation of our Precision Ag menu with multiple menu options including variable rate fertilizer application, variable rate seed and seed placement, and data analysis programs to assist in making the best management decisions. Most IAS Precision Ag Service resources are managed and completed internally to minimize any time delay in making important decisions and adjustments to recommendations. The IAS Team looks forward to helping you sort through the complexity of Precision Ag to make well informed decisions and recommendations for your fields.

IAS Precision Ag Services also has a developing Precision Ag Equipment division providing sales and service for a number of technology equipment lines.

**IAS Gold Program**
- Grid soil sampling with recommendations
- Soil sample analysis maps
- VRT planting maps and recommendations
- Yield maps
- Yield analysis reports
- Crop scouting

**IAS Silver Program**
- Grid soil sampling with recommendations
- Soil sample analysis maps
- VRT planting maps and recommendations
- Yield maps
- Yield analysis reports

**IAS Bronze Program**
- Grid soil sampling with recommendations
- Soil sample analysis maps
- Yield maps

**Maximizing Yield and Profitability**

The IAS Sales Teams has a number of tools to assist you in seed decisions on your fields. It is our goal to source as much information as possible from our seed suppliers along with your input to make the best seed decisions maximizing yield and profitability on all your seed acres. We will work with you to determine the right genetics for the right soil type at the right plant population in the right cropping system with the right traits fed the right plant nutrition defended with the right crop protection.

We look forward to customizing solutions with the use of technology and your experience to help manage your field’s potential. Your local yield data combined with Answer Plot research trials, innovative products and management programs, and the IAS Precision Ag platform are all resources we will use to make the best decisions.

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**Variable Rate Seed**

**Variable-Rate Seeding Prescription**

**Yield by Soil Type**

**Variable Rate Fertilizer**

**R7 Yield Potential Map**
1. **PRE herbicides in both corn and soybeans**
   - IAS offers and recommends a comprehensive approach including full rates of products that are the first and best line of defense against resistant weeds
   - Soy PRE’s: Optill Pro, Prefix, Boundary, Sonic, Warrant, and Prowl H2O
   - Corn PRE’s: Lumax, Lexar, Verdict, Triple Flex, Surestart, GMAX, Corvus, and Harness Xtra

2. **Utilize products with limited or no current resistance**
   - While glyphosate resistance has received a lot of attention, there are many products that control resistant weeds
   - Examples: Liberty, Warrant, Outlook, Harness, Dual, Prowl, Treflan, Status

3. **Rotate modes of action**
   - There are a myriad of products to choose from but many of them use the same mode of action. Repeated use of products that have the mode of action is a path to weed resistance.
   - IAS staff will help design a weed control program that uses several modes of action.

4. **Utilize the corn crop rotation**
   - There are a wider range of products that can be used in corn to address difficult weeds such as waterhemp and marestail, thereby setting the stage for fewer problems in soybeans.

5. **Have a plan B ready**
   - Sometimes mother nature can make it difficult to get all of the PRE herbicides applied before the corn or soybeans are out of the ground. When that happens, several residual herbicides can still be applied such as (Warrant, outlook, etc).

6. **Manage POST applications correctly**
   - Post-emerge products can be a great tool to manage weed escapes and late emerging weeds, but they need to be applied at the right time to ensure best control.

7. **Prioritize scouting**
   - Preventing weed resistance requires vigilance: making sure herbicides are working and escapes are being controlled before they go to seed.

8. **Use the fall and early spring burndown windows**
   - For no-till producers, fall and early spring can be the best time to control winter annuals such as marestail and perennial weeds such as dandelion; as well as spread out the workload.

9. **Cultural practices**
   - Tillage, narrow row spacing, incorporating herbicides such as Prowl and Treflan, controlling weeds in fencelines and terraces, hand weeding late season escapes, and even field cultivation are all tools that need to be evaluated.

10. **Develop a plan and stick to it**
    - Preventing weed resistance requires a comprehensive plan. Agronomists at IAS will work with you to develop a plan that meets the goals of your operation.

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**Why is Waterhemp Such a Problem?**

"Waterhemp mathematics" Dr. Jeff Stachler, NDSU and U of MN

The following describes how dramatically a resistant waterhemp population can explode in three seasons.

- If a single waterhemp plant/acre survives a herbicide application, it can easily produce 100,000 seeds*
- If 25% of those seeds emerge next season and 10% are resistant
  2,500 plants could survive and produce 100,000 seeds each
- If 25% of the seeds emerge next season and 10% are resistant
  6.25 million plants could survive and produce seed
- Minor concern to major problem in the span of three years

Critical to obtain 99 to 100% weed control to manage resistant waterhemp populations

*Conservative number since a single plant can produce >1 million seed
Plant Health / Stress Mitigation

Nutrient Management

Stress Window

Decision Making/ Data Analysis

Late Season Yield Factors

- Pollination, sugar movement, and grain fill
- Susceptible to nitrogen deficiency
- High temp stress
- Leaf & stalk diseases
- Silk clipping

Solutions To Reduce Establishment Stress

- Starter programs – fertility + root protection and growth promotion
- Seed treatments – fungicide, insecticide, nematacide, biostimulants
- Pre-emerge herbicides

How Kernel Size Affects Yield

<table>
<thead>
<tr>
<th>Year</th>
<th>Standard N</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td>125</td>
</tr>
<tr>
<td>2012</td>
<td>150</td>
</tr>
<tr>
<td>2013</td>
<td>175</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Sequential Nand Foliar N + Boron Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>100.0 + 14.5 bu/A</td>
</tr>
<tr>
<td>2011</td>
<td>119.0 + 11.9 bu/A</td>
</tr>
<tr>
<td>2012</td>
<td>124.0 + 12.4 bu/A</td>
</tr>
<tr>
<td>2013</td>
<td>126.0 + 12.6 bu/A</td>
</tr>
</tbody>
</table>

Consistent Yield Results Since Commercial Introduction

Summary of all on-farm trials, Headline AMP was applied at 10 fl oz/A after VT.

5-0-15-14S 0.5Fe

- Sulfone is an organic form of sulfur –structure allows for uptake through leaf tissues and then conversion
- Greater leaf safety than other forms of S –especially sulfates
- Paired with Take Off biostimulant for Nitrogen assimilation
- Easily combined with micro packages to enhance your crop with a post herbicide application.

13 days after treatment

Brandt Smart Trio Take Off SULFONE

5-0-15-14S 0.5Fe

- Best Strob in out there
- Improves overall plant health/stress reliever

SRN25B

- Supplements N at key timings
- Delivers boron for demand for flowering, pollen development, and sugar movement
- Complements the VT fungicides

25-0-0 Slow Release Nitrogen

In Furrow Fertilizer

SRN25B

Untreated

SRN25B Rep 1

SRN25B Rep 2
How to Calculate Corn Yield Prior to Harvest

1. At each estimation site, measure off a length of row equal to 1/1000th acre. For 30-inch (2.5 feet) rows, this equals 17.4 feet.

2. Count and record the number of ears on the plants in the 1/1000th acre of row that you deem to be harvestable.

   **TIP:**
   Do not count dropped ears or those on severely lodged plants unless you are confident that the combine header will be able to retrieve them.

3. For every fifth ear in the sample row, record the number of complete kernel rows per ear and average number of kernels per row. Then multiply each ear's row number by its number of kernels per row to calculate the total number of kernels for each ear.

   **TIPS:**
   Do not sample nubbins or obviously odd ears, unless they fairly represent the sample area. If row number changes from butt to tip (e.g., pinched ears due to stress), estimate an average row number for the ear. Don't count the extreme butt or tip kernels, but rather begin and end where you perceive there are complete “rings” of kernels around the cob. Do not count aborted kernels. If kernel numbers are uneven among the rows of an ear, estimate an average value for kernel number per row.

4. Calculate the average number of kernels per ear by summing the values for all the sampled ears and dividing by the number of ears.

   **EXAMPLE:**
   For five sample ears with 480, 500, 450, 600, and 525 kernels per ear, the average number of kernels per ear would be \((480 + 500 + 450 + 600 + 525)\) divided by 5 = 511.

5. Estimate the yield for each site by multiplying the ear number (Step 2) by the average number of kernels per ear (Step 4) and then dividing that result by the number below that best represents the kernel set and grain fill conditions this year for the field whose yield you are estimating. The values below represent the range in numbers of kernels (thousands) in a 56# market bushel.

<table>
<thead>
<tr>
<th>Growing conditions</th>
<th>Range in kernel number per bu. (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>75 to 80</td>
</tr>
<tr>
<td>Average</td>
<td>85 to 90</td>
</tr>
<tr>
<td>Poor</td>
<td>95 to 105</td>
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</tbody>
</table>