Considerations for Planting Conventional Corn

- Understanding the additional risks and complexities that can be associated with conventional corn are essential to maximizing returns.
- Conventional corn requires additional management intensity and timely application of products to control pests.
- Understand the yield potential of each field and set realistic yield goals for your fertility program.
- Crop rotation can help manage pest problems and contribute to higher system productivity.

Low commodity prices have encouraged some farmers to evaluate input costs and consider alternative seed product choices, fertility and pesticide inputs, and other variable costs to offset lower margins. Some farmers are considering planting conventional seed products, Roundup Ready® Corn 2, or glyphosate-tolerant products without insect traits. Careful consideration should be given to assessing the risks of planting non-traited seed products, associated with grain price premiums getting harder to find and contract.

During tough economic times, reviewing the proven practices that support optimum corn yield potential can help avoid costly errors. Consider the potential impact of cutting input costs on corn yield potential. Understanding the additional risks and complexities that can be associated with conventional corn are essential to maximizing returns. Focus on potential return/acre, not just costs. A period of low commodity prices is not the time to make dramatic changes in your production practices and take risks that can lower yield potential.

Corn Product Selection

The most important variable with the least management control in corn is the weather. The most important management decision is corn product selection.[1] Product selection determines management decisions farmers make during a growing season. The main management objective is to reduce stress on corn plants during the growing season. Conventional corn may cost less per bag but may result in higher management intensity and more timely application of products or practices to control weeds, insects, and diseases for products or practices that are normally controlled by insect and herbicide resistant traits.

- Corn product selection should be based on consistent product performance based on reliable multi-location yield trial data.
- Select products with proven yield potential, maturity, drydown, and standability.
- Early planting is essential for greater yield potential; corn can reach maturity earlier and can be harvested sooner at lower kernel moisture contents than late-planted corn. Early planting can allow more acreage to be planted to full-season hybrids for the greatest yield potential.
- Select the insect-protection and herbicide-tolerant traits that fit pest situations for each field. In University of Wisconsin trials, up to a 42% swing in yield potential can hinge on the corn product selection decision.[1]
- Adjust seeding rates to field conditions for optimum yield potential and calibrate the planter to use seed efficiently.

Monitor Weeds, Insects, and Diseases

- Don't compromise your weed management program. Corn is sensitive to early season weed competition. Invest in a reliable weed management program that includes multiple overlapping residuals. Apply a pre-emergence residual herbicide and follow with a timely post-emergence herbicide with a residual and a herbicide to control emerged weeds to obtain the best protection for corn yield potential.[2] Use herbicides with multiple sites of action in tank mixtures that control the weeds in each field.
- Farmers should spend time in the field looking for insects. Subscribe to insectforecast.com for timely information on the best time to scout for corn rootworm, corn earworm, and western bean cutworm infestations. Several University sites provide scouting information, monitoring, and management recommendations for European corn borer, black cutworm, and other insects.
- Seed-applied insecticides and insect-protected corn products with multiple modes of action can provide broad-spectrum control of insects in corn. However, planting conventional seed may require an investment in an intensive scouting program to identify insect problems before the economic thresholds are exceeded. Be ready to make timely insecticide applications. The additional management input and cost of insecticide applications may offset the perceived advantage of cheaper seed.

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- Black cutworms are migratory insects that require careful scouting and timely soil- or foliar-applied insecticide application.
- European corn borer (ECB) populations still threaten non-*B.t.* corn products. An analysis of historical ECB damage in Minnesota estimated that *B.t.* corn for ECB provided an average benefit of $17.24/acre.[3] Multiple timely pesticide applications are critical in conventional corn because insecticides may only provide 80% and 67% control of first and second generation ECB, respectively.[3]
- Scout for first and second generation ECB and treat as warranted. ECB can infest over 200 plant species such that a residual population will always exist, even with high use of insect-resistant traits.
- Soil-applied insecticides are required in corn rootworm (CRW) infested areas. Scouting beetle populations in corn and soybeans can help predict the need and timing for insecticides in the current crop or in following corn crops.[5]
- Crop rotation is an essential practice to manage insect, weed, and disease problems in conventional corn.

The best defense against diseases is selecting corn products with disease resistance. Pay close attention to northern corn leaf blight, Goss's wilt, gray leaf spot, and Anthracnose, Diplodia, Fusarium, and Gibberella stalk rots, southern rust, or any other specific disease that occurred in the previous corn crop in that field.

Fertility

Set realistic yield goals for your fertility program.

- Use soil test results to establish rates of yield-limiting nutrients and apply only the nutrients a field requires.
- Prioritize fertilizer resources for the most productive fields.
- Use starter fertilizers with phosphorus (P) and potassium (K).
- Use precision technology to vary nitrogen (N), P, and K rates and reduce over-application of nutrients.
- Improve N efficiently by sidedressing before the V8 stage of corn growth.[2] If time does not allow sidedressing in all fields, use the late spring nitrate test to determine which fields may benefit most from sidedress applications.

Managing Yield Expectations

Conventional corn may have reduced yield potential due to insect damage, even if insecticide treatments are used. Depending on weed pressure and management strategy, conventional corn may have higher weed control costs. Corn products with biotech traits have been shown to protect yield potential and help manage downside risks from insects, weeds, and diseases.

Figure 1. European corn borer life stages. Egg mass (top left), larva, adult moth, pupa.

Matching the right corn products for different fields within an operation is the most critical management decision a farmer can make. Once that decision has been made, management revolves around managing stress to capture as much corn yield potential as possible. Individual corn products have different inherent yield potential. Each farmer must select the corn products with the best potential production for each field and then manage input costs accordingly to optimize production.

Manage Grain Purity

Some growers are looking for a premium for conventional corn and must be diligent in managing grain purity.

- Understand the purity requirements for the intended use for conventional corn. Maintain buffers to manage pollen from other corn products.
- Plan to invest the time to thoroughly clean the planter before planting.
- Extensive cleaning of the combine, grain carts, augers, elevators, and storage areas prior to harvest will help maintain grain purity.
- Contact your seed representative or brand agronomist for more information.

Sources:
[1] Lauer, J. 2015. Do we grow another bushel or save a buck? Agronomy Advice. University of Wisconsin.
[2] Smith, D. 2015. 9 ways to cut input costs without sacrificing yield. Farm Journal, Agweb online.
[3] Ostlie, K.R., Hutchison, W.D., and Hellmich, R.L. Bt corn and European corn borer, long-term success through resistance management. University of Minnesota.
[4] Lauer, J. 2000. Proven corn management practices and practical tips when prices are down. Agronomy Advice. University of Wisconsin.
[5] Managing Corn Rootworm E-series 49-W. Purdue University.
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