



SEEDBED PREPARATION & PLANNING

ENVIRONMENT

SOIL TEMPERATURE

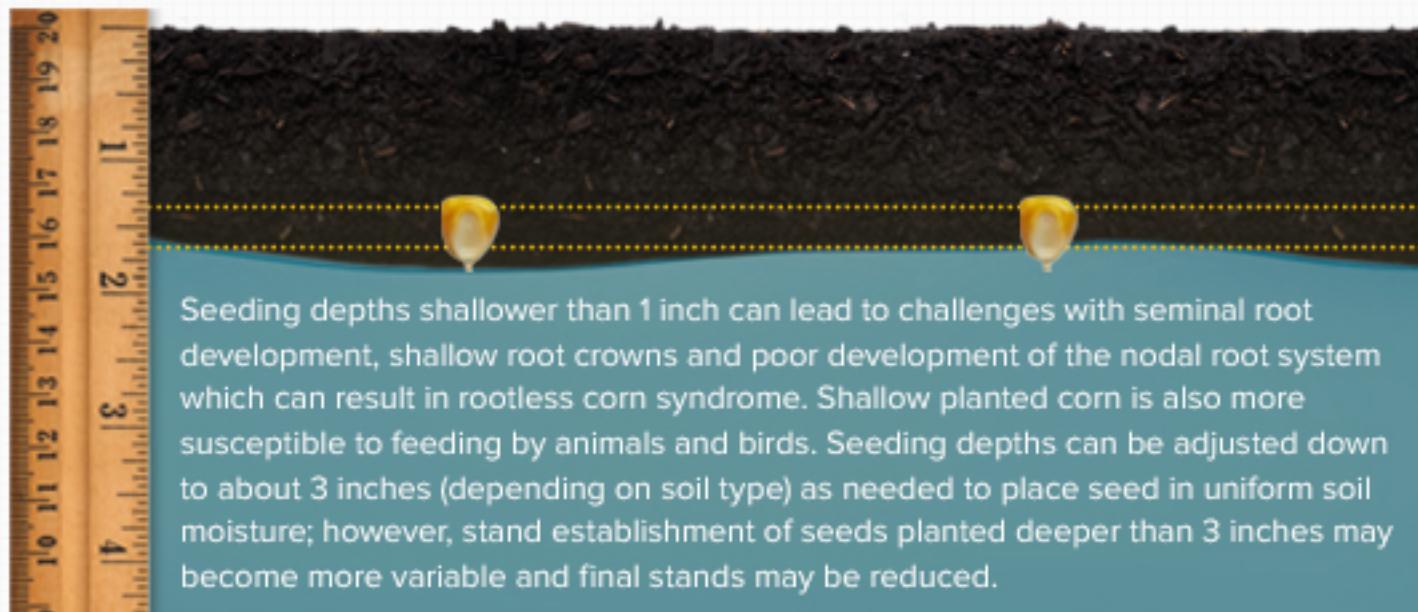
Establishing the desired corn stand is a key element of maximizing potential yield and profitability. Weather is a major factor that must be considered.

- Avoid planting according to calendar date
- Evaluate variable soil moisture and temperature
- Be careful planting in wet soil
- Use a temperature probe

EQUIPMENT

PLANTING DEPTH

Normal planting depth should be 1.5 to 2 inches deep. However, depths should be adjusted deeper in dry conditions to ensure that corn seeds are placed at a level to provide adequate, uniform moisture for germination and emergence.



Seeding depths shallower than 1 inch can lead to challenges with seminal root development, shallow root crowns and poor development of the nodal root system which can result in rootless corn syndrome. Shallow planted corn is also more susceptible to feeding by animals and birds. Seeding depths can be adjusted down to about 3 inches (depending on soil type) as needed to place seed in uniform soil moisture; however, stand establishment of seeds planted deeper than 3 inches may become more variable and final stands may be reduced.

PRODUCT SELECTION

PLANTING POPULATION

Average corn populations have increased by 300 to 425 plants per acre per year in the Corn Belt over the past 25 years. These increases have been directly correlated to increases in corn yield on an annual basis; however, achieving the optimum seeding rate for a given field is complex and is affected by both economics and final stand yield components.

FERTILITY

NITROGEN AVAILABILITY

A study from the University of Wisconsin found that "regardless of the rate or source, the fate of fall- and spring-applied N is mostly impacted by weather conditions in early spring." Determining the amount of nitrogen available for plant uptake this spring and identifying further management steps this season is critical to maximizing corn yield potential.

COMMON NITROGEN FERTILIZER OPTIONS			
Fertilizer Type	% Nitrogen	Risk of N Loss and Other Considerations	Suggested Use
Ammonium Nitrate	33 – 34	Half ammonium N and half nitrate N; not recommended for soils subject to leaching or denitrification; can be surface applied where volatilization of urea is a concern.	Side-dressing Corn
Ammonium Sulfate	21	Little risk of loss to surface volatilization on most soils; requires 2 – 3 times more lime to neutralize acidity compared to other N fertilizers.	Spring Pre-plant Side-dressing Corn Fall Application
Anhydrous Ammonia	82	Converts to Nitrate N slowly, so less risk of loss due to leaching or denitrification; must be injected into the soil, therefore little loss to surface volatilization; can be hazardous to handle	Side-dressing Corn Fall Application
Urea	45 – 46	Converts to nitrate relatively quickly; denitrification on wet/compacted soils can be serious; leaching can be a problem; surface volatilization can occur when temperatures are above 50° F, therefore needs to be incorporated.	Spring Pre-plant Side-dressing Corn Fall Application
UAN	28 – 32	Usually consists of urea and ammonium nitrate; each component has the same loss mechanisms as mentioned above	Spring Pre-plant Side-dressing Corn

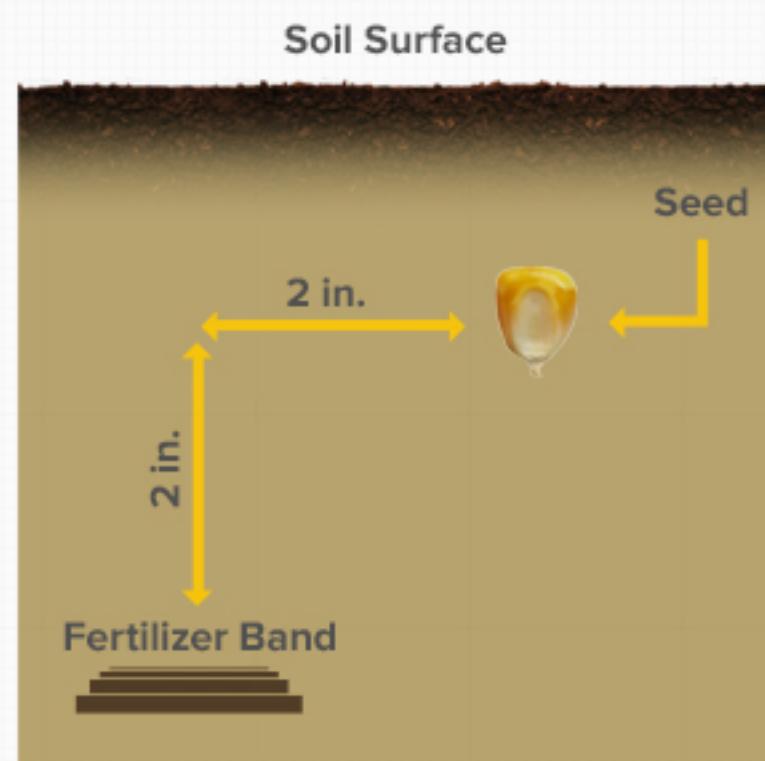


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FERTILITY

FIELD CONDITIONS

Starter fertilizers, or nutrients placed close to the seed in small quantities at planting, can promote early growth in corn, potentially resulting in larger, more uniform plants, earlier flowering, earlier maturity and the potential for higher yields.



FIELD CONDITIONS MORE LIKELY TO SHOW A RESPONSE TO STARTER FERTILIZER	
+	Heavy Residue +
+	Cool Soil Temperatures
+	Low Phosphorous (P)
+	Sandy Soils w/ Low Organic Matter (DM)
+	Irrigated Sandy Soils
+	Some High pH Soils

The Most Common Placement of a Starter Fertilizer is the 2 x 2 Band

RESIDUE MANAGEMENT

CREATING AN IDEAL SEEDBED

Row cleaners are mounted on the planter ahead of the planting unit and are designed to move residue and clods to the side thus clearing path for disk openers to create a true "V" seed trench.



NOT IDEAL

Uneven emergence in a field of corn planted after corn.



IDEAL

Properly adjusted row cleaners remove residue from the row and can lead to more consistent planting depth and spacing.

By moving residue and exposing bare soil, row cleaners can help increase soil temperatures in the seed zone and reduce hair-pinning of residue in the seed furrow. Yield increases, reduced barrenness and reduced moisture at harvest were also attributed to this type of strip preparation.



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INSECT MANAGEMENT

EARLY SEASON INSECT CONSIDERATIONS

Early season insects that feed on corn seeds or seedlings can cause plant injury, stunting, delayed emergence and/or stand loss. Soil insecticides and/or seed treatments can provide a good level of control for 3 to 4 weeks after planting. Acceleron® Seed Treatment Products utilize clothianidin, a leading insecticide, to reduce damage caused by secondary pests.



BLACK CUTWORM

Preventative treatment or rescue treatment when 2 - 4% of the plants are cut below-ground or 6-8% of the plants are cut above the soil surface and cutworms less than 1 inch long are present.



WIREWORM

Preventative treatment or 1 or more per baited trap.



TRUE WHITE GRUB

Preventative treatment or before planting, check 1-square-foot of soil. One white grub per square foot is enough to cause significant stand loss.



SEED CORN MAGGOT

Preventative treatment only.



CHINCH BUGS

Count adults and nymphs. 10 or more on 3-inch plants and 50 or more on 12-inch plants. Lower threshold if plants are under stress.



JAPANESE BEETLE GRUB

Baited wire traps can be set up 2 to 3 weeks prior to planting to see if Japanese Beetle larva are present. Currently, thresholds exist for adult feeding during tasseling only.

IPM BEST MANAGEMENT PRACTICES

ROTATE CROPS

- If you have a field that has been in continuous corn production, and you are seeing increasing insect pressure, we recommend rotating to soybeans or other non-host crops.

CONTINUE TO SCOUT AND STAY AHEAD

- We recommend continuing your integrated pest management program, including regular scouting, to better understand and manage your insect pressure.

BUILD A STRONG DEFENSE

- If you are seeing increased pressure in a field you intend to plant back to corn in 2014, we recommend planting Genuity® SmartStax® RIB Complete® corn hybrids that provide dual mode-of-action Bt traits and deliver excellent performance.
- If rotation or Genuity® SmartStax® RIB Complete® corn is not an option for growers, using soil- or foliar-applied insecticides with Genuity® VT Triple PRO® and Genuity VT Triple PRO® RIB Complete® to manage larvae and adults is a viable option.



ACRES OF GOLD

THE CORN YIELD OPTIMIZATION GUIDE

SEEDBED PREPARATION & PLANNING

DISEASE MANAGEMENT

SEEDLING DISEASE TREATMENT

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Seedling diseases can occur in the form of seed rots, seedling blights, and/or root rots.

- If the above-ground symptoms are due to seedling diseases, mesocotyls and/or roots will also be symptomatic

Disease inoculum can build in continuous corn cropping systems; however, some seedling diseases infect both corn and soybeans.

SEED TREATMENT OPTIONS FOR CORN

CORN	
Active Ingredients	Major Pests
DISEASES	
ipconazole metalaxyl trifloxystrobin	Fusarium Rhizoctonia Pythium
INSECTS	
clothianidin	black cutworm, grape colaspis, seed corn maggot, white grub, wireworm, sugarcane beetle
NEMATODES	
Bacillus firmus I-1582 (Poncho/Votivo)	dagger, lance, needle, pin, ring, root knot, root lesion, spiral, sting, stubby root, stunt

PREPLANT WEED CONTROL

Effective weed management is imperative to protect crop yield and profit potential. An effective weed control program should start with pre-plant and/or preemergence applications that include soil residual herbicides to provide long-lasting, residual weed control. The potential impacts of weed competition are significant; studies show that if left uncontrolled, 12-inch weeds could cause 22% yield loss in corn.

VOLUNTEER CORN PLANTS

Volunteer corn can be uniquely challenging in corn-on-corn production. Under normal conditions, volunteer corn does not have a great impact on corn yield. However, in instances where a lot of down corn occurred last year, control options should be considered to minimize the impact of volunteer corn.

COMPETITIVE EFFECTS OF VOLUNTEER CORN

Volunteer Corn Plants/Acre	Average % Yield Loss
1,000	0.6
5,000	3.0
10,000	5.9
20,000	11.8