



CORN • COTTON • GRAIN SORGHUM • SOYBEANS • WHEAT

ISSUE HIGHLIGHTS

Prepare for corn season

- Choose planting dates based on weather, not the date. *Page 1*
- Read that bag of corn seed closely. Are you getting what you pay for? *Page 2*
- Adjust seeding rates based on conditions in your fields. *Page 3*
- Make sure to plant seed deep enough. *Page 3*
- Uniform plant emergence helps ensure good yields. *Page 4*
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Pest management

- Plant corn into “clean” fields to reduce pest problems later. *Page 5*

Online resources

- Guides are available on cotton varieties and weed control. *Page 8*

Almost time to plant corn: Monitor temps to determine the best planting dates

BY DAN FROMME

Temperature determines how fast corn plants grow. Day length does not control development, meaning the calendar date is not as important as soil temperature and air temperature when considering when to plant corn.

Good germination and emergence can be expected once the soil temperature at a 2-inch depth reaches 55 degrees Fahrenheit by 9 a.m. for three consecutive days.

This normally occurs in late February and March in Louisiana. In most years, the planting window for south Louisiana is Feb. 25 to March 20. For north Louisiana, it is generally March 10 to April 1. Planting past the last optimal planting date can result in losses of one-half to 1 bushel per day.

Frost sometimes occurs after these planting dates. However, corn typically withstands frost with little economic injury. Corn younger than V6 (six-leaf stage) usually can withstand a light frost if the temperature does not drop below 30 degrees. A moderate freeze will burn any existing leaves and cause them to drop, but new leaves can emerge in four to five days with warm temperatures.

Keep in mind that as the growing point moves upward and nears the soil surface, the possibility of injury increases.

Results from a study on planting dates follow on the next page. This study was conducted in 2017 with dryland corn at the Dean Lee Research and Extension Center near Alexandria. §

Planting date study

Soil type: Coushatta silt loam

Hybrid: DKS62-08

Row spacing: 38 inches

Seeding rate: 34,000 per acre

PLANTING DATE	FINAL PLANT HEIGHT (INCHES)	EAR HEIGHT (INCHES)	BUSHEL PER ACRE	SEED WEIGHT (GRAMS; PER 300 SEED)
Feb. 24	76.49	36.31	178.1	99.49
March 20	83.75	42.50	181.9	93.76
April 6	86.23	43.98	164.6	87.39

Check tags to ensure buying the right seed

BY DAN FROMME

Before you plant, check the tag on that bag of corn seed. Often in the seed industry, the same variety is sold under multiple brand names. In other words, just because the seed is in a different bag does not mean it is not the same variety.

This creates two significant problems for farmers:

— **Overpaying for seed:** Because different brands often sell the same variety for very different prices, some farmers significantly overpay, perhaps not realizing that other brands sell the same variety at a lower price.

— **Lack of genetic diversity:** When the same variety is sold under multiple brand names, it is easy for farmers to unknowingly purchase the same variety from multiple brands, thinking they are buying a unique variety from each brand. This can lead to a failure to establish the genetic diversity that many farmers strive for when selecting their seed.

Federal and state seed labeling regulations typically require bags of seed to be labeled with the variety name. Each variety has a unique set of numbers and/or letters, which are typically in a sequence of six to 10 digits. §



Look closely at the tag at left. The variety name is 1065462. On the tag at right, the variety name is 101542-05. That means these two corn varieties are not the same.

If the numbers were the same, you would have been planting the same variety.

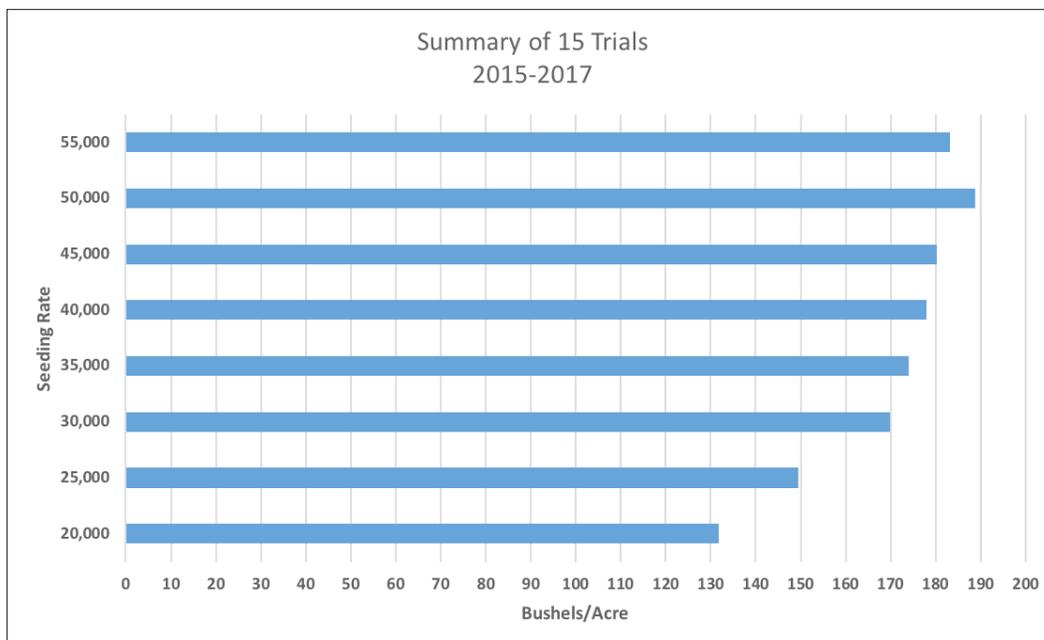
Choose corn seeding rates carefully

BY DAN FROMME

Optimal seeding rates vary from 32,000 to 36,000 seeds per acre, depending on specific field conditions, genetics and environments. Higher seeding rates can increase yields; however, the extra seed cost will reduce the net dollar return per acre. The lower end of the recommended range should be used when lower yields are expected due to soil type, late planting date, drought-prone areas or low fertility. Higher populations should be used on

highly productive deep alluvial soils or in irrigated fields where moisture will not be a limiting factor. Generally, a seeding rate to obtain a final stand of 27,000 to 30,000 seeds per acre will maximize yield.

The graph below shows results of 15 corn seeding rate trials conducted with dryland corn at the Dean Lee Research and Extension Center near Alexandria between 2015 and 2017. Rows were spaced 38 inches apart and were located on Coushatta silt loam soil. §



Plant seed 2 inches deep for ideal development

BY DAN FROMME

An old rule of thumb says to plant corn seed as deep as the second knuckle on your index finger. But not everybody's fingers are the same length. We need to be more accurate than this, as planting depth is an important management decision.

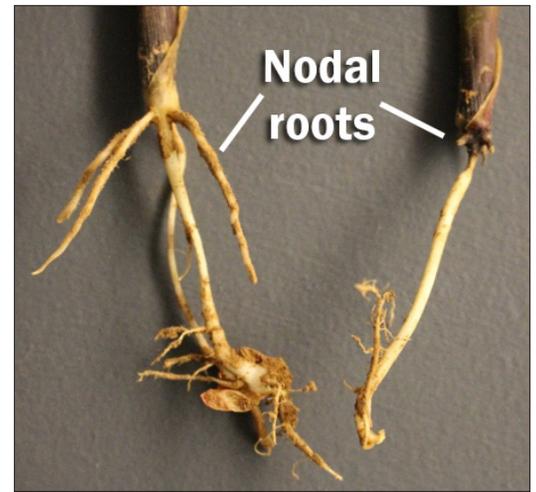
Seed must be planted deep enough. Planting too shallow tends to lead to more problems. Typical recommendations call for a depth of 1.5 to 2.5 inches.

Most people split the difference and plant at a depth of 2 inches.

The first reason to target a 2-inch depth is to make sure you have good seed-to-soil contact. The seed need to be where moisture is most consistent. Uneven soil moisture throughout the seed zone is the primary cause of uneven emergence, which can result in yield losses of 10 percent or more.

The second reason is to establish a strong nodal root system. Nodal roots not only support the corn plant structurally, but also are responsible for much of a plant's uptake of water and nutrients. The nodal roots are essential in reducing early-season root lodging and rootless, or floppy, corn syndrome.

We often plant deep enough only to have a heavy rain come right after planting. This can wash away soil and reduce the depth of the seed. Corn should never be planted less than 1.5 inches deep. An ideal target is 1.75 to 2.25 inches. However, depending on soil type and conditions, seed may be planted up to 3 inches deep without any effect on stand establishment. §



The plant on the left was planted 2 inches deep. It has a strong nodal root system. The plant on the right was planted 1 inch deep. It has no nodal roots.

Uniform emergence of corn plants is critical

BY DAN FROMME

After plant population, uniform emergence of plants is one of the most important factors for optimum corn yields. Causes of non-uniform emergence include differences in soil moisture, seed-to-soil contact, soil temperature, soil crusting, herbicide and insect damage, and soilborne diseases.

Studies were conducted in 2017 and 2018 at the Dean Lee Research and Extension Center near Alexandria. Depending on the amount of leaf delay and percent of delayed plants in a field, yield reduction can be significant. §

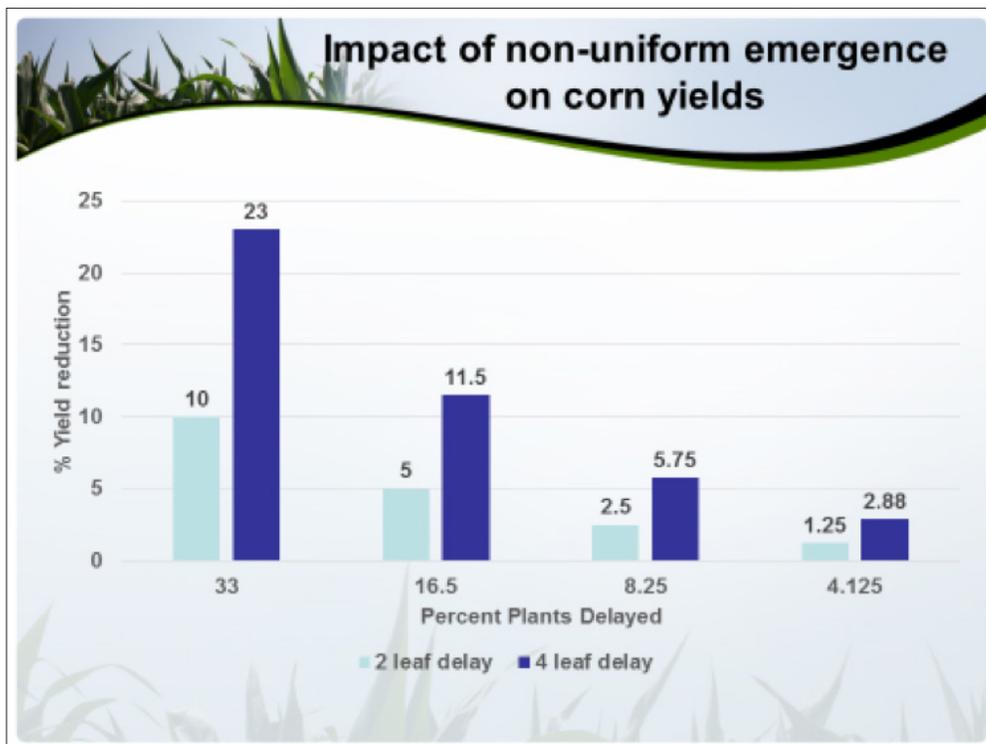


Figure 1. This graph shows the percent yield reduction caused by corn plants with two- and four-leaf delays.

Should I use starter fertilizer when I plant my corn?

BY DAN FROMME

Starter fertilizer is small amounts of nitrogen, phosphorus, potassium, sulfur and zinc placed near the seed at planting. Starter fertilizer applications in corn have been well researched and documented.

The best starter application method is to place the fertilizer 2 inches below and to the side of the seed row (2 x 2), but other placements may be helpful in certain cases. Placement close to the seed is risky because fertilizer salt or ammonia may inhibit germination or injure seedlings. Sandy soils and dry conditions increase risk of injury. Guidelines for assessing the potential for salt injury are based on the fertilizer's nitrogen, potassium and sulfur content.

Starter fertilizer may increase early growth of corn; however, this often does not translate to increased yield. Corn yield increases from starter fertilizer applications are most likely to occur:

- With cultural practices such as no-till or minimum tillage.
- On soils with coarse textures or low organic matter.
- On poorly drained or cold soils.
- On soils that test low for P and K.
- When nodal root systems are severely impeded by abiotic or biotic stresses.
- When soil pH is unusually high or low. §

Avoiding the train wreck of planting dirty

BY SEBE BROWN

Since the 1990s, most farmers in the mid-South have tilled their corn fields less and less frequently. Conservation tillage production practices have significantly influenced arthropod pest diversity and density. Preventative integrated pest management (IPM) strategies coupled with early detection of problems and reactive treatments are essential components in a profitable field corn production system.

Before planting

Burndown herbicides typically are applied 30 to 45 days prior to planting the crops. Complete control of all weed species in the field and on the surrounding field borders is necessary to eliminate alternate host plants of insect pests. Fields should be scouted at the time of planting to ensure the seedbeds are essentially weed-free. The presence of heavy plant residue following burndown applications or any green vegetation on the seedbeds can create a favorable environment for arthropod pests. Incomplete termination of some weed species provides a refuge for insect pests until crop seedlings become available. Even at planting, herbicide application or modified tillage treatment may be warranted to ensure a clean seedbed and remove alternate hosts of arthropod pests.

In addition, heavy residue from previous crops covers the soil surface and mediates soil temperature and moisture levels. This, in turn, increases the probability of insect pests such as bollworms and spider mites successfully overwintering in those fields. Identifying these problems early provides producers the information necessary to modify their insecticide use strategies at the time of planting.

At-planting and surface-applied insecticide applications should be used to manage cutworms if winter vegetation was not terminated well in advance of planting, if incomplete kill of winter weeds occurred, if any freshly emerged vegetation is observed on the seedbeds at the time of planting or if cutworms are observed in high numbers on plants in the field or along field borders. The most common insecticides used for this application are pyrethroids. The lowest application rates have proven to be effective preventative treatments when applied properly.

Producers should apply a broadcast treatment or in a wide band over the seed furrow. Cutworms exist below the soil surface feeding on root tissue and may not be exposed to the insecticide if only part of the seedbed is treated.

At planting

Soil insecticides such as Counter 15G, Lorsban 15G and Aztec 2.1G were once the standard treatments applied in the seed furrow to control seed and seedling pests in corn. However, Gaucho 600FS, Cruiser 5FS and Poncho 600FS have become standard as seed treatments, replacing granular and liquid soil-applied insecticides on considerable acreage. Regardless of the product used, an at-planting insecticide treatment is essential for optimal seedling development. Producers should not reduce seeding rates below recommended levels when using at-planting insecticide treatments. Lower-than-optimal plant populations cannot consistently tolerate injury from seedling insect pests and recover to produce maximum yields.

Post-emergence

Generally, corn seed treatments, at existing rates, will exhibit enough residual efficacy for corn seedlings to develop beyond the susceptible stages to many below- and above-ground insect pests. However, when soil temperature is below 55 degrees F, delayed germination and uneven emergence can increase the susceptibility of corn seedlings to arthropod pests.

For producers using herbicide-tolerant crops, the co-application of foliar insecticides with post-emergence herbicides is a cost-effective practice when controlling above-ground pests. However, there are no rescue treatments for below-ground insect injury, and seedling protection is critical when planting corn in sub-optimal conditions.

As conservation tillage systems continue to evolve, IPM strategies will need to adapt to address emerging pest issues. Pest managers and producers should scout fields and identify situations that may result in pest problems. These fields should be considered “high risk” and managed with preventative pest

management methods. An effective IPM strategy for corn pests should include weed-free seedbeds well in advance of planting, optimal application dates and rates of cultural practices, and discriminate use of preventative and reactive chemical control strategies for pest problems.

Most IPM recommendations do not recognize general differences in insect management recommendations between conventional and conservation tillage systems. However, to improve the overall success of insect pest management in conservation tillage systems, crop advisers and producers should apply timely broad-spectrum herbicide treatments to control spring vegetation not only within the field but also on field borders. Many of these insect pests are highly mobile and crop advisers should scout field borders and adjacent fields to observe potential refuges for these pests.

Fields should be scouted regularly during the season and treated only as needed based on insect density and changes in plant development. Agronomic practices that enhance rapid seed germination and promote seedling growth should be used to reduce the period of time that plants are susceptible to insect pests.

Chemical control strategies are effective against corn insect pests, but the application method, product rate, and treatment timing must be adjusted for the requirements of each individual field. Seed treatments and soil-applied insecticides are critical inputs in conservation tillage systems for corn. Crop advisers and producers should recognize the potential for unidentified pest problems, intensify scouting practices and use all available resources to make an informed decision on the appropriate management strategy.

Southern row crop producers have incorporated significant changes in corn production systems to decrease input costs and improve profits. These changes can significantly influence arthropod pest diversity and density as well as overall pest status. Conservation tillage systems or components of those systems have widespread acceptance among producers.

However, several of those practices, including reduced tillage and winter cover crops, have also been demonstrated to increase problems with some insect pests. There are numerous insect pests that are capable of injuring corn across the South, but only a select few are directly affected with a change in tillage systems. Most of these are associated with seed germination and seedling development. There are, however, other pests that can be indirectly affected by conservation tillage production systems and occur as problems later in crop development. These indirect effects are the result of production systems

that influence changes in the landscape across an entire farm or farm region. Fortunately, the impacts of insect pest problems have been minimized with the tools, technologies and production practices that are now available.

The table below summarizes corn pest problems common to the mid-South. The ranges of these effects are highly variable and depend on the environment of the local landscape and the production practices applied to individual fields. §

Table 1. Common pest problems in mid-South field corn.

INSECT	EFFECT^a	DESCRIPTION OF PROBLEMS
Southern corn rootworm	0 to +++	Fields to be planted to corn that contain winter seeds such as henbit are attractive to adults that lay eggs in the soil. The larvae hatch feed on corn seeds and roots. Timely vegetation management can reduce the impact of these pests.
Seed corn maggot	0 to +++	Adults prefer to lay eggs on fields with decaying crop residue. Wet soil conditions and cool temperatures can slow seedling development and make plants more susceptible to injury.
Beetles	0 to +	Wireworms and carrot beetle larvae as well as sugarcane beetle adults may be serious pests of seedlings in fields with heavy crop and winter vegetation residue.
Cutworms	+ to +++	Cutworms can overwinter in no-tillage fields. The adults of some species prefer to lay eggs in fields with dense weeds, winter cover crops or heavy crop residue. As pre-plant vegetation is destroyed, larvae feed on crop seedlings to survive.
Slugs	0 to +++	Winter vegetation and crop residues in wet soil conditions favor slug populations and seedling injury.
Chinch bug	+ to +++	Plant residue provides a favorable habitat for these insects. Chinch bugs prefer fields with surface vegetation, which makes control with foliar insecticides difficult.
Corn borer ^b	0 to +++	Several species of borers overwinter in corn stubble. Con-till can increase overwintering survival and subsequent problems in corn.
Stink bug	0 to +	Con-till fields usually have little effect on bug pests. Delayed herbicide applications can increase population in fields. Poor control of spring weeds such as marehail or primrose can increase populations. Vegetation management surrounding fields is critical to bug IPM.
Corn earworm	0	Winter survival of heliothine populations can be increased in con-till fields. Little economic injury occurs except for seed producers.

^a “+++” = Substantial increase in pests; “+” = Some increase; “0” = No effect; “-” = Decrease in pests.

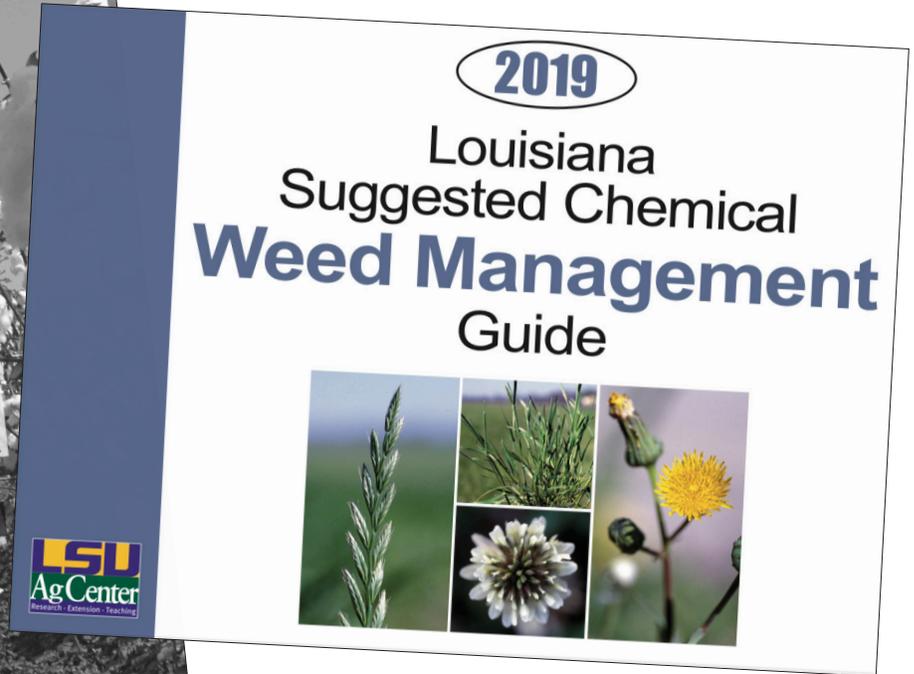
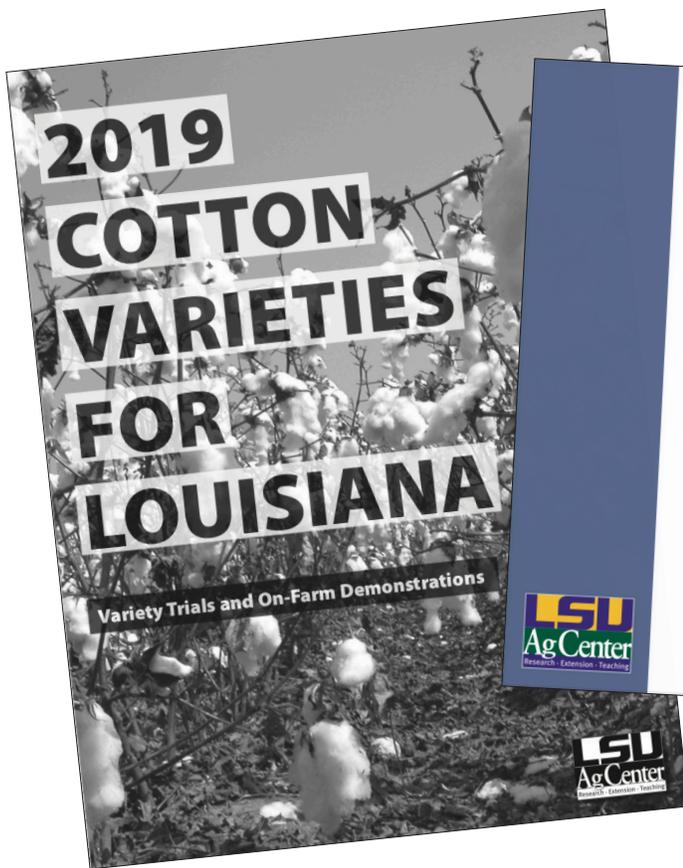
^b Borer pests include Southwestern corn borer, sugarcane borer and European corn borer.

Helpful, free resources for the 2019 growing season available on LSU AgCenter website

BY DAN FROMME

A summary of all the cotton variety trials and on-farm demonstrations conducted in 2018 are available online at https://www.lsuagcenter.com/topics/crops/cotton/variety_trials.

The 2019 Louisiana Chemical Weed Management Guide for weed control in corn is available at https://www.lsuagcenter.com/topics/crops/corn/weed_control.



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Cotton	Agronomic	Dan Fromme	318-880-8079	DFromme@agcenter.lsu.edu
Grain sorghum	Agronomic	Dan Fromme	318-880-8079	DFromme@agcenter.lsu.edu
Soybeans	Agronomic	Boyd Padgett	318-614-4354	BPadgett@agcenter.lsu.edu
Wheat	Agronomic	Boyd Padgett	318-614-4354	BPadgett@agcenter.lsu.edu
Pathology	Cotton, grain sorghum, soybeans	Boyd Padgett	318-614-4354	BPadgett@agcenter.lsu.edu
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We're on the web.

www.lsuagcenter.com/topics/crops
www.louisianacrops.com

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