

MANAGEMENT DECISIONS BASED ON PLANTING DATE

Early Planting

Early planting (late March through mid-April) of soybeans in Mississippi is now commonplace, and should be considered the norm for achieving high yield. It is likely a significant contributing factor to the Midsouth states' [high yields in recent years](#). It is used as a mechanism to avoid drought and late-season pest problems, plus ensure early harvest.

The greatest risk with early planting is perceived to be from low air temperature that occurs after soybean emergence. There are known cases of soybean seedlings surviving frost after emergence, but the severity and duration of these cold temperatures are not documented. Presumably, there is a difference in how 2 hours at 36 degrees that may result in a light frost and 8 hours at 33 degrees that may result in a heavy or "killing" frost will affect soybean seedlings.

Knowing the estimated last spring date of a particular low temperature is important. Estimated dates for 36, 32, and 28 deg. temperatures at most [Mississippi locations](#) have been calculated.

Again, there is no documentation of just what level of frost will be detrimental to soybean seedlings. One choice to lower risk of stand loss is to time planting so that emergence will occur after the estimated 50% last spring frost date for a given location. Seedling emergence in early plantings will generally take 9-14 days, and [will assuredly take longer](#) than emergence from plantings made during the previous normal planting window.

If any stand failure resulting from frost or freeze injury is unacceptable because of a shortage of seed available for replanting, then delaying planting to ensure that emergence occurs after the 10% last frost date may be preferred. If this approximate 2-week delay in planting is too great for production and/or marketing goals, then

planting on dates that fall between the 50% and 10% last frost dates will impart a risk of stand loss that falls between those for the two dates.

For those who choose the early planting option, here are a few important points and tips.

- It is generally recognized that the standard germination test is deficient as a measure of the potential field performance of seeds, and this is especially true for early plantings. A seed vigor test more accurately measures seed properties that determine the potential for rapid and uniform emergence, and development of normal seedlings under a wide range of field conditions.
- The [accelerated aging test](#) is the preferred method for evaluating the vigor of soybean seeds. This test evaluates the germination capacity of seeds that have been subjected to high temperatures and humidity stresses for a defined period. Farmers who anticipate planting early should request information on seed vigor from the supplier of a seed lot, or obtain this information from an independent laboratory.
- Preferably, lower quality seeds should not be planted in the conditions that usually occur with early planting. However, when seed lots with a lower-than-desired germination (<80%) must be used, the vigor test is especially important. Also, these seed should be planted at an increased rate.
- High-quality seeds that have received an appropriate [seed treatment](#) to control early-season insect pests and both seed- and soil-borne disease pathogens will germinate and emerge. Emergence time may be extended by cold soils, but emergence will occur as long as adequate soil moisture is available. New seed-applied nematicides should be considered when planting in fields that are infested with soybean cyst nematode (SCN) if

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the level of resistance in selected varieties is not known or will not be effective against the race of SCN in the field.

- If sudden death syndrome (SDS) is suspected to be a problem in fields with a previous SDS history ([recent evidence indicates that SDS has moved into the Midsouth](#)), then consider adding a [seed treatment](#) that provides protection from seedling infections by *Fusarium virguliforme*, the causal agent of SDS.
- Soybeans can be planted at varying seeding rates because different rates within an acceptable range can be used without affecting yield potential. It is generally accepted that [seeding rates](#) between 120,000 and 150,000 per acre should be used to attain a final stand of at least 100,000 plants per acre.
- Soybean varieties grown in the Midsouth generally need 135 to 140 days from planting to maturity to reach full yield potential. MG IV varieties planted early fit this criterion. MG V varieties can also be planted early, but their 15-20 days longer growing season provides no yield advantage.

Late Planting

A significant portion of Midsouth soybean acreage is doublecropped with wheat, and these soybeans will by necessity be planted after early June, which is classified as late.

Late plantings in the midsouthern US will require a management strategy that is different from that for earlier plantings.

- Past research that was both [long-](#) and [short-term](#) indicated that late MG V or early MG VI soybean varieties are the best fit for late plantings because of their greater yields compared to MG IV and MG V varieties. It is presumed the greater yields result from their longer vegetative period.

- There is now evidence from [recent research](#) with newer MG IV varieties that using late-maturing varieties in late plantings is not the best option.
- Preventing and/or alleviating short-term stresses during early vegetative development is more critical with late plantings. Therefore, [seed treatments](#) should be used, even though the threat of seedling diseases associated with cool, wet soils is not considered as serious with later planting. Using a combination product that contains both fungicides and an insecticide is relatively inexpensive insurance to prevent stand losses and the early-season stresses caused by seedling diseases and insects.
- Planting late results in later calendar-date maturity and a higher probability of detrimental infestations of both [foliage and pod-feeding insects during reproductive development](#). This will result in either increased cost associated with more spraying or unacceptable yield loss if control measures are not applied. Up-to-date information and advisories about pest outbreaks during the growing season are available from [AgFax Media](#) and the [Mississippi Crop Situation](#) blog. Thresholds for making treatment decisions along with recommended control measures are available in the [MSU-ES Insect Control Guide](#).
- Planting late results in a higher risk of detrimental effects from drought, especially during soybean's reproductive development. In irrigated plantings, this means more irrigation during reproductive development with subsequent higher input costs. Information in the [Irrigation White Paper](#) will help with irrigation decisions for late plantings.
- The threat of soybean rust to the midsouthern US soybean crop is always a major concern. Rust usually is detected in soybean sentinel

plots in the extreme southern part of the region no earlier than late July/early August, which coincides with beginning bloom or R1 of MG VI varieties planted in mid-June.

Since these plantings do not reach R6 until about Oct. 1, they are susceptible to rust incursions during their entire reproductive period. Thus, they are more likely to require treatment to prevent or control late-season rust infestations that may occur. Up-to-date information and advisories on the occurrence and expected movement of soybean rust in the US are available from the [soybean rust pest information platform](#).

- Late plantings will have less time to recover from stresses, especially during reproductive development. Therefore, it is critical that manageable stresses caused by pests, weeds, and drought are either prevented or are quickly identified so that remedial measures can be applied as soon as possible.
- Later-maturing varieties used in late plantings will be harvested in October and November when there is a greater probability of wet soil. Harvesting at this time usually results in some level of rutting that may require remedial tillage. This may interfere with a continuous no-till system in some years, but as stated in the [Tillage White Paper](#), this occasional tillage does not necessarily compromise the long-term goals of a no-till system.

- With the apparent adaptation of newer MG IV varieties to late planting, and with the above negatives associated with using later-maturing varieties in late plantings, the new dogma is that MG IV varieties are preferred for late plantings in the Midsouth.
- Bookmark the pest advisory and control links that are provided in this article. Information in these linked articles will be invaluable to you in planning pest management activities in late plantings. Also, by following these advisories, time and money will be saved by avoiding applications of unnecessary control measures for the major soybean pests.

Conclusions

Early plantings are preferred for Midsouth soybean production systems because they will produce greater yields and are less likely to be infested with late-season disease and insect pests.

A fungicide seed treatment should always be applied to soybean seed that are planted both early and late.

Late plantings of late-maturing soybean varieties are more vulnerable to late-season insect and disease pests, and will yield less than early plantings.

MG IV varieties are now apparently the best choice for late plantings in the Midsouth.

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