



## Grain Crops Update

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### Bird Repellent and Nitrogen Application Suggestions

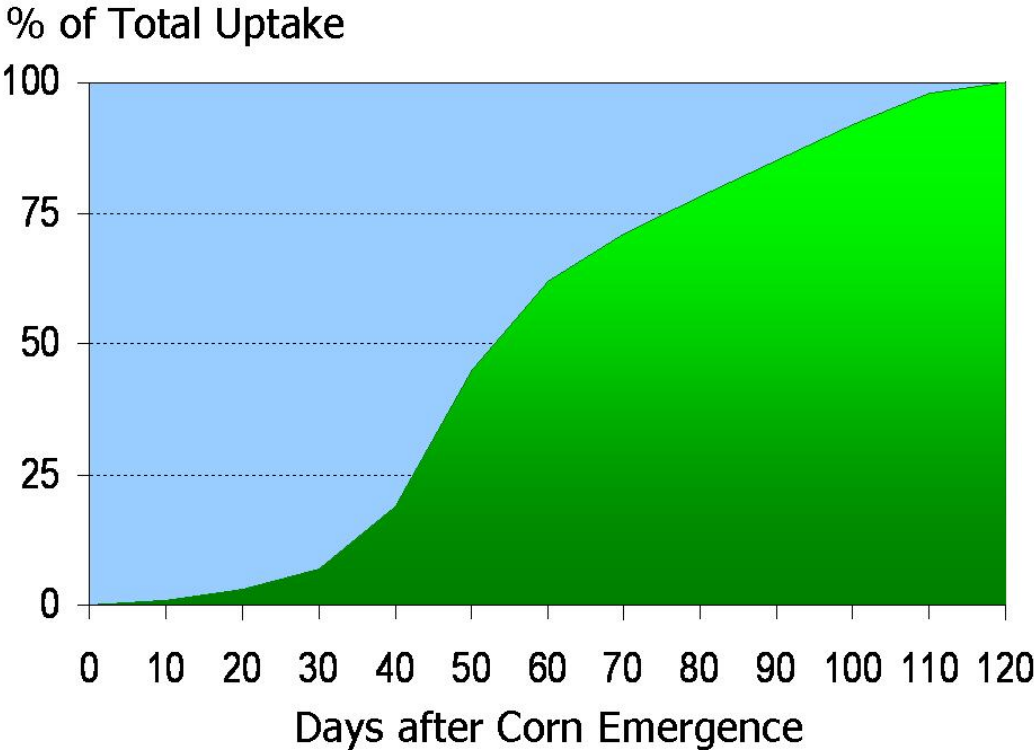
**Bird Repellent Exemption** - The EPA has granted the Mississippi Department of Agriculture a Section 18 exemption allowing the use of anthraquinone (Avipel™) for the purpose of repelling blackbirds, grackles and crows in newly planted field or sweet corn in the state of Mississippi. Avipel's active ingredient is a natural, non-lethal compound proven to repel birds. Avipel is available for use on corn seed as either a liquid or dry formulation. The liquid formulation has demonstrated very reliable performance on large avian species, such as cranes, and is the preferred formulation for high bird pressure fields, but does require commercial seed treating prior to planting. The dry formulation offers growers the convenience and speediness of hopper-box treatment, but its effectiveness is dependent upon thorough seed coverage and gentle handling. For example, performance of the dry material may not be as good as the liquid form when used in planters with air or vacuum seed metering systems, because the air circulation may remove some of the product from seeds before planting. The use of supplemental dry lubricant on the corn seed may also reduce Avitec seed coverage and/or adherence of the dry formulation, and subsequent repellency.

**Figure 1.** Mississippi growers may use Avipel to reduce blackbird depredation in corn fields.



**Nitrogen application** – Nitrogen, unlike some other nutrients, is very subject to change forms in the soil, which can substantially affect its availability to plants. The South’s warm, high rainfall climate greatly increases potential nitrogen loss through denitrification and leaching, compared to drier and colder climates. Springtime denitrification losses can be very substantial, particularly in our heavier, clay soils, when soils remain saturated for extended periods. Denitrification happens when microorganisms turn nitrate nitrogen into nitrogen gas. These gases then escape into the air. Warm soil temperatures speed up this process. Research indicates denitrification rates range from 2 to 3 percent per day at soil temperatures from 55 to 65 °F. Denitrification rates increase to about 5 percent per day when soil temperatures are warmer. Nitrogen application timing can have considerable effect on potential nitrogen loss. Since corn nitrogen requirement is high, and it is the first crop planted in the spring (when losses can be high), application timing can have tremendous impact on corn productivity and your profitability. Therefore, I strongly encourage you apply nitrogen fertilizer at specific times according to corn need -- in other words “spoon feed” your crop using a split application strategy. This split application method reduces the likelihood of considerable nitrogen loss due to wet weather before crop uptake, and generally increases crop response to nitrogen fertilizer. Corn uses less than 10 percent of its nitrogen before rapid vegetative growth begins. This growth spurt usually happens in late April through mid-May, depending on seasonal temperatures and planting date. Thus, there is no good reason to apply considerable nitrogen in March, when it is not needed until May. You can use nitrogen more efficiently if you apply only a small portion of nitrogen just after plants emerge. This reduces the amount of nitrogen exposed to potential early season loss. Apply the bulk of your nitrogen fertilizer just before the growth spurt, when the plants need it most. Our standard nitrogen recommendation is to apply no more than one-third of the total nitrogen near planting/crop emergence. Apply the remaining nitrogen about 30 days later. Corn should be higher than 12 inches or at V6 growth stage by the second application.

**Figure 2.** Corn seasonal nitrogen uptake. Split application is encouraged because corn nitrogen uptake is very low during the early season, when often wet conditions encourage substantial loss.



**Figure 3.** Blackbirds and other ground-feeding bird species can cause significant stand loss in Mississippi corn fields. This damage will reduce crop productivity and may necessitate replanting when severe crop damage occurs. Damage is often more extensive in early corn plantings.



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