

Wheat Management in Indiana

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Given the recent high wheat commodity prices, it seems timely and useful to review or reconsider certain winter wheat management practices for Indiana. Wheat prices probably will not remain as high as currently, although it seems reasonable to expect prices to remain higher than in recent years.

Sustained wheat prices above \$4 certainly warrant 'best management' practices to maximize grain and straw productivity. Combining early-maturing, strong-strawed varieties, optimum and balanced nutrient fertilization and harvesting at 18 – 22 percent grain moisture should maximize wheat grain and straw production, grain quality, and expand doublecropping with soybean after wheat harvest farther northward than is currently practiced.

Seeding. Seeding at or in the week following the widely used guideline of the 'Hessian fly-free' date is useful. It is useful not only for avoiding infestation by Hessian fly, but more importantly to minimize fall infection of foliar diseases and yellow dwarf, which is transmitted by aphids that move from senescing corn and perennial grasses onto the emerging wheat. Seeding earlier than the fly-free date will increase the likelihood of getting too much growth of the wheat prior to onset of dormancy for the winter.

Fertilization. The current practice of typically applying 20 – 35 lb N at fall seeding is a good practice in most situations. Topdressing: one application of typically 90 – 100 lb N at mid- to late-February in southern Indiana to mid-March in northern Indiana is minimal for maximizing grain yield, especially considering current higher wheat prices. Producers should consider application of an additional 20 – 40 lb N as a second application in late-March in southern Indiana to mid-April in northern Indiana. Producers should avoid applying more than 100 lb N at one application in February – March, because with the normally high rainfall at this time of the season a significant portion of the N will likely be lost due to leaching. Generally, N applied early in the crop growth cycle will result in taller plants, and possibly more lodging, and N applied later in the crop growth cycle, especially after the boot stage, will result in higher grain nitrogen – not desirable in soft (pastry) wheat.

Irrigation. Rainfall in most seasons in Indiana is adequate to ample for excellent wheat yield. However, with high grain prices and short strong-strawed varieties, irrigation at critical growth stages is warranted. In some seasons hot and dry periods of two to several weeks can occur during the growing season. Irrigation at early boot stage to

approximately 15 days after flowering can result in significantly increased grain yield and test weight in some years and especially on drought-prone soils.

Harvest. Wheat is typically harvested at 13 – 14 percent grain moisture, from about 15 – 25 June in southern Indiana to 10 – 20 July in northern Indiana. In many years, this can be a rainy part of the season that can delay harvest and, consequentially, reduce grain quality and even straw quality, in addition to limiting the opportunity of seeding soybeans immediately after wheat harvest. Wheat grain is physiologically mature at 35 percent moisture, meaning that no additional dry matter (yield) is produced in the wheat crop after the grain has dried to 35 percent moisture. If one were to harvest at 35 percent moisture, damage to the grain would be significant and the amount of energy required to dry it to 14 percent moisture for safe storage would be excessive. However, harvesting at 18 – 22 percent grain moisture, using a ‘stripper-header’ on the combine, and then drying the grain using air and minimal or no heat, would result in excellent grain quality. More importantly, one could typically harvest 7 to 10+ days earlier than at 14 percent moisture. Additionally, if one or more rainfalls were avoided by harvesting at the higher moisture, grain quality and test weight would be higher and delays in harvest would be avoided. Generally, after each rain and drying cycle after grain has dried to about 14 percent moisture, test weight is reduced by at least 0.5 lb per bushel. The earlier harvest date would also allow the practice of doublecropping farther northward in Indiana. One caution if heat is applied during grain drying is to not exceed 103F, because wheat germination is easily decreased if subjected to temperatures above 105F when the grain is high in moisture.

Wheat straw. Straw can be a significant component of the total wheat crop value. If wheat grain is harvested at 18 – 22 percent moisture, moisture content of the straw can be too high for immediate baling and storage without risk of becoming moldy. One can inject ammonia into the bales to prevent mold development and then store the bales in an environment in which they can dry naturally.

Replacing the nutrients removed with straw baling can be a significant cost with the current high price of fertilizer. A ton of straw contains about 12 pounds of nitrogen, 3 pounds of P₂O₅ (phosphorus), and 26 pounds of K₂O (potassium). About 100 pounds of straw are produced per bushel of grain, although typically only 2/3 of the total is baled. For a 70-bushel per acre wheat crop, about 25, 6, and 56 pounds per acre of nitrogen, P₂O₅, and K₂O would be removed from the field with baling. Potassium is readily leached from the straw, so the more rain that falls on the residue the lower the amount of K₂O remaining in the straw.

Don't forget, this and other timely information about corn can be viewed at the Chat 'n Chew Café on the Web at <http://www.kingcorn.org/cafe>. For other information about corn, take a look at the Corn Growers' Guidebook on the Web at <http://www.kingcorn.org>.

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