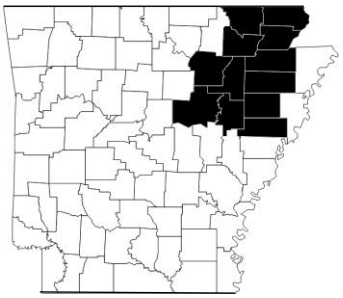
WHITE RIVER

Rice Production Ecological Zone



The Upper White River Valley of Arkansas (White River) Ecological Zone lies in parts of Clay, Craighead, Cross, Greene, Independence, Jackson, Lawrence, Poinsett, Randolph, St. Francis, White, and Woodruff counties. It encompasses most of the rice produced west of Crowley's Ridge and North of Interstate 40. It includes loessial plains west of Crowley's Ridge and the floodplains and terraces associated with the Cache, Black, Current, L'Anguille, and White Rivers. This region has historically been one of the principal rice production areas due to the shallow but productive silt loam topsoil and the thick clay layer beneath. However, other areas of this region contain coarse sands with little water-holding ability to fine clays, often within the same field. Variability of soil properties within a given field is often associated with many of the challenges facing rice producers in this region.

Although the Grand Prairie is often perceived to be the rice capital of Arkansas, over 50% of the rice produced in Arkansas is in the White River Zone (~600,000 acres). Four of the top five rice producing counties in Arkansas are at least partially in this zone (Poinsett, Lawrence, Jackson, and Greene). In 2017, over 600,000 acres of rice was harvested in this region but some parts of this region have some of the lowest average yields in the state. The principal rotation crop is irrigated Group IV and V soybean, producing approximately 1,000,000 acres of irrigated soybean. Other crops including corn, cotton, and grain sorghum are minor components of this zone.

Rice production in this region is mostly conventional. However, areas of this region were some of Arkansas' pioneers in conservation tillage, with a significant amount of conservation tillage utilized. Rice is typically drill-seeded in April and intensely managed with respect to water needs, weed control, insect control and disease control. However, there are areas of this region where insufficient pumping capacity often dictate management decisions. This represents the heart of the medium grain production in Arkansas primarily because producer experiences suggest these cultivars are the best selection for the low fertility, alkaline soils in this region that also often experience seasonal salinity problems. However, long grain production also constitutes a significant amount of the rice produced in this region. A small number of growers in the area practice continuous rice production, which typically is water-seeded. This region encompasses nearly all of the major challenges to rice production in Arkansas. The soils are variable, often drastically within the same field, and infertile. Propanil, Newpath, Command, and Facet resistant barnyardgrass was first observed in this region. To add to that, tough restrictions on herbicide applications in this zone often create weed control problems unique to this zone. A long history of rice production has led to heavy disease pressure of all of the major diseases, including sheath blight, blast, panicle blight, kernel smut, stem rot, and false smut.

Current and future rice production challenges for the White River Ecological Zone include but are not limited to the following:

- Irrigation water quantity and quality
- Irrigation efficiency
- Fertility and sustainability of topsoil (soil problems include high pH and salt)
- Tillage-related soil physical and chemical problems (i.e., compaction and salinity)
- Appropriate fertilization practices
- Pest management – weed, disease and insect control
    - Weedy rice, herbicide-resistant barnyardgrass
    - Sheath blight, blast, panicle blight, kernel and false smut
    - Grape colaspis, rice stink bug, rice water weevil
- Consistent, higher rice quality
- Higher yielding, more efficient cultivars
- Grower education
- Agronomics (planting dates and seeding rates associated with North Arkansas)
- Economical production efficiency