

# on the bayou

BAYOU BARTHOLOMEW WATER QUALITY PROJECT

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## Multiple Inlets are Getting Popular

Several Southeast Arkansas rice producers are realizing the benefits of using irrigation tubing to provide multiple water inlets when irrigating rice fields. This is referred to as side inlet or multiple inlet irrigation. The difference with this method from conventional flooding is that tubing is either laid along the side of the field or through the middle of the field. The basic concept is to distribute the irrigation water evenly over the whole field at one time rather than putting



- Reduces amount of water pumped
- Reduces runoff from field (tail-water)
- Reduces irrigation labor
- Reduces cold water effect – leads to higher yields
- Avoids risk of washing out levees
- Reduces problems associated with scum and algae buildup at levee gates

by **Bill Kinkaid**

all the water in the top of the field and pumping until it gets to the bottom of the field. The distribution is achieved by releasing water into each paddy at the same time through use of gates or holes in the irrigation tubing.

Multiple inlet irrigation can provide improved water management and conservation in the following ways:

- Can flood field faster – increased fertilizer and herbicide efficiency
- Reduces pumping time during the growing season
- Reduces pumping cost

This past growing season Chad Norton, Lincoln County Extension Agent - Staff Chairman, had a multiple inlet demonstration on John and Frank Freeman's Farm. Chad said, "The use of multiple inlets allowed the Freeman's to save 3 days in their initial flood on a 100-acre rice field and over 4.5 million gallons of water." "Also,

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the Freeman's were very pleased and intended using multiple inlets on more of their fields in the future."

Information from other field demonstrations in the Bayou Bartholomew Watershed indicate that multiple inlet irrigation is a sound practice and can extend numerous benefits to rice producers. See savings analysis from demonstrations.

Multiple Inlet Irrigation Savings Analysis								
County	Field and Size	Water Usage			Water Savings		Cost Savings	
		gal	ac/in	gal/ac	ac/in	gal/ac	per acre	total
Lincoln*	Coventional 31 acres	49.2 million	58	1.59 million	----	----	----	----
Lincoln*	Multiple Inlet 37 acres	37.8 million	37	1.02 million	21	570,000	\$31.29	\$1,157.73**
Desha*	Coventional 37 acres	22.3 million	22 ***	602,703	----	----	----	----
Desha*	Multiple Inlet 37 acres	18.3 million	18 ***	494,595	4	108,108	\$5.96	\$220.52**

\* fields are side by side

\*\* does not include cost of poly pipe and gates (around \$200)

\*\*\* data is from two-thirds of the way through the season

Cooperative Extension Service Rice Budgets estimate that it costs \$1.49 per acre inch to flood irrigate.

## Cattle and Cotton Can Work

Cotton farmers who have cattle can make use of their cotton fields after the harvest with little more than an electric fence. For those who want to take the process a little further, like the Arkansas Department of Corrections (ADC) does at their Cummins Unit, they can plant wheat right after they defoliate their cotton. The ADC on an annual basis flies on about 3 bushels per acre of wheat on approximately 1,000 acres of cotton right after defoliant is sprayed. Then an electric fence is installed around the acreage that is intended to be grazed

in order to keep cattle within that area. Keep in mind that the cotton stalks are still standing when the cattle are brought in to graze. One may ask what benefits are gained by doing this? Having talked with Dub Cook who works with the Department of Correction's livestock operations and Charles Capps the Farm Manager, it is easy to see why this practice is incorporated into their program. (See chart.)

When early spring arrives the Department of Corrections stops grazing their cattle on the wheat and cotton, just in time for their

livestock sale. After the cattle are taken off, the stalks are shredded before the deadline and normal farm operations

are conducted. Also, a burndown herbicide is not used on the wheat.

— Bill Kinkaid

### Grazing cattle on cotton and wheat can:

- help cut down on feed usage in the winter
- save labor after the initial work of putting up the fence
- provide a nutritious source of food from the lint, cotton seeds and wheat
- make use of land because of its proximity to their cattle operation
- add organic material back to the fields
- reduce the number of wintering boll weevils
- cut down on winter weeds
- help reduce soil erosion by providing a cover crop

# 1999 Farm Tour a Success

A special thanks goes out to over 90 people who endured the 100 degree weather at this past year's Southeast Arkansas Innovative Farming Tour on July 27, in Lincoln and Desha Counties. Believe it or not, the air conditioned buses were not the highlight of the tour. Producers, crop consultants, ag lenders, and ag industry people made up most of the attendance. The tour showcased production practices such as: multiple inlet irrigated rice, border irrigated soybeans, no-till cotton

and aerial seeded soybeans. The producers and crop consultants were really interested in the multiple inlet rice at the Freeman Farm in Lincoln County and the no-till cotton at the Teeter Farm in Desha County, especially in a time with critical groundwater levels and low commodity prices.

Also, the presentation at lunch about the Boeuf-Tensas Irrigation Project by Ann Cash (project manager) and Todd Fugitt (Arkansas Soil and Water Conservation Commission) was very



Praise from other "attendees" included: "Everything was well planned and coordinated. Good tour!" "Gave me a good overview of what's happening in southeast Arkansas agriculture."

informative and well received.

This tour would not have been successful without the work of the Lincoln and Desha

County ag agents, their staff and specialists in the Southeast District.

— Bill Kinkaid

## Tips for No-Till Cotton Production

### Field Section

- Same as for conventional tillage.
- Control erosion using waterways, rows on contour and filter strips.
- Subsoil if tillage pan exists and/or extreme traffic has occurred.
- Avoid land with heavy infestations of perennial grasses and vines.

### Vegetative Cover

- Cover crops may be needed if crop residue is inadequate.
- Small grains, especially wheat, are preferred.
- Excessive growth can interfere with planting, emergence and growth.



- Do not plant until cover crop and weeds are dead.

### Planting Equipment

- Use conservation tillage or no-till planting equipment.
- Heavy duty down pressure springs.
- Tool bar weight brackets.
- Double-disc or offset double-disc openers.
- Heavy duty press wheels.

- Plant 4 to 5 mph.
- Use coulters if the planter does not have double-disc openers.

### Planting

- Soil temperature 68°F for three consecutive days with a favorable five-day forecast.
- Planting may be delayed if crop or residue is dense.
- Plant seed 1/4 to 1/2 inch deep.
- Good closure of seed furrow can help ensure a better stand.
- Plant stands may be reduced – plant 1/2 to 1 seed per foot more than conventional.

### Weed Control

- Kill vegetation prior to planting.
- May require two burn-downs.
- First, at least two prior to planting.
- Second, can be applied at planting.
- Identify weeds in seedling stage.
- See Roundup Ultra and Gramoxone Extra labels for rates on specific weeds.

### Fertilizer and Lime

- Soil test same as conventional.
- Adjustment for cover crop may be necessary.

— Dr. Bill Robertson,  
Extension Agronomist-Cotton

# Winter Ricefield *Management* can Decrease Non-point Source *Pollution* in Southeast Arkansas

Non-point source pollution, defined as movement of sediments, nutrients and organic chemicals from diffuse sources to points of concentrations, degrades water quality in the United States.

Approximately 35 percent of our rivers, lakes and estuaries were designated as degraded in a 1994-1995 water quality inventory. Sediments and nutrients derived from agricultural sources were of major concern as they affected as much as 25 percent of these water resources. The Southeast Arkansas Delta, which is a part of one of the largest and most productive agriculture regions in North America, shares in non-point source pollution challenges.

Fortunately, agricultural non-point source pollution has decreased significantly over the past decade. Improved conservation efforts on quality production lands, and habitat restoration on highly erodible lands, are responsible for these decreases. The abilities of Southeast Arkansas water resources to meet agricultural, municipal and industrial needs,

while supporting fish and wildlife, continues to depend on our abilities to reduce non-point source pollution in concert with agricultural production.

Conservationists advocate the provision of shallow (less than 30 centimeters) water on ricefields in Southeast Arkansas as foraging and resting areas for migrating and wintering waterbirds. An average of 640,000 hectares of rice was harvested in Arkansas and Mississippi from 1993-1995. Only 66,000 hectares (10 percent) of

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this harvested acreage was managed to hold winter rainfall and runoff.

Agriculturalists and other natural resources stewards agree that an increase in winter management of ricefields would be justified if there were positive effects on soil conservation, water quality, agricultural production, and wildlife habitat. During the winters of 1995 through 1997, the poten-



tial of winter flooding to provide these mutual benefits was investigated. Study results indicated that winter flooding, especially when combined with stubble left standing after harvest (stubble/flooded), greatly reduced soil loss.

Fields that were conventionally disked in fall and left open (disked/open) to drain freely after winter rains lost 1,120 kilograms/hectare of soil, while stubble/flooded fields lost only 35 kilograms/hectare—32 times less! Winter flooding reduced soil loss by 70 percent in fields that were disked in the fall (disked/flooded).

Reductions in non-point source discharge,

promoted by winter flooding and fall no-till practices, are likely the result of treatment mechanisms such as reduced rainfall impact and overland runoff energies, plus additional time for flooded fields to act as settling basins. Also, impounded waters evaporate and likely seep into subsoils, therefore reducing total runoff volume.

Winter ricefield management can reduce non-point source pollution in Southeast Arkansas and help protect water resources for recreational, municipal, industrial and wildlife habitat needs. These techniques should be used by conservation partnerships where rice culture prevails.

— Dr. Scott Manley,  
Ducks Unlimited, Inc.,  
and Bill Kinkaid

# Transgenic *Technology* Can Complement No-Till Soybean Production

With commodity prices at historical lows, more and more producers are looking at various options to help cut production costs. No-till is one option that is increasingly gaining support, especially in soybeans and rice. Not only does no-till help cut costs, but it also aids in the reduction of soil erosion, reduction of nutrient loss and improves water infiltration – all of which help to improve water quality. Transgenic technology (Roundup Ready) for soybeans appears to be a good fit with no-till production due to its ability to aid in weed suppression. The yields

of Roundup Ready soybeans are also improving to levels that are comparable to conventional varieties.

This past growing season Dr. Lanny Ashlock, Soybean Specialist, and Brady Harmon, Jefferson County Ag Agent, were able to conduct a no-till Roundup Ready soybean variety trial with Jefferson County producer Mike Bryant. The trial consisted of eight group V varieties that were replicated four times. The table below has the results of the average of all four replications.

— *Bill Kinkaid*

**Jefferson County Roundup Ready Soybean Variety Trial (1999)**

Variety	Average Yield Overall Reps
NKS59-V6 (RR)	56.5
P95B53 (RR)	53.5
H5999 (RR)	52.6
DP5806RR (RR)	50.9*
AG5901 (RR)	48.7*
P95B41 (RR)	46.9*
TV5666RR (RR)	45.0*
AG5602 (RR)	44.5*

\* Represents varieties that yielded significantly less (LSD= 5.0) than the top performer.

## Tips for No-Till Doublecrop Soybean Production

### Dealing With Wheat Residue

- Consider using short-statured wheat varieties.
- Cut wheat just below the heads to minimize straw residue for better planting.
- Uniform straw distribution can ensure better planting.
- Waiting till the dew is off can ensure that the straw is more brittle and easier to plant through.

psi are encouraged for thorough weed coverage.

- Gramoxone Extra and Roundup D-Pak are two effective burn-down herbicides available to the no-till producer.
- Timely postemergence herbicide applications can help reduce weed pressure in a no-till production system.



### Using The Right Planter

- Planters with fluted, bubble, ripple or smooth coulters will help with seed to soil contact.
- Planting at a slight angle (20 degrees) to the wheat can help with seed to soil contact.
- Planters with heavy cast-iron press wheels placed in a vee usually provide the best seed cover.
- Weight or proper spring tension on the press wheels may be required for firming the soil around the seed.
- Planters with 450-600 lbs of weight per row unit may be necessary to ensure proper seed depth.

### Other Management Considerations

- Use high yielding varieties.
- Adequate soil moisture is necessary for good yields.
- Extension computer programs such as “SOYVA” and “Irrigation Scheduling” can be helpful in variety selection and water management.
- Research suggests that after June 15, growers should plant at row spacings of 19 inches and less.
- Increased seeding rates of 15 percent and seed treatments often help to ensure better stands.

### Controlling Weeds

- Use of proper burn-down herbicides and proper rates at spray pressures of 50 to 60

— Dr. Lanny Ashlock,  
Extension Agronomist-  
Soybeans, and  
— Bill Kinkaid

