The rotations we compared had rice every year, every second year, and every third year. Highest water stable aggregate values were in the rotations that had rice every year while the lowest values were from rotations that contained rice every third year. These results suggest that rice, grown in a no-till setting and where stubble is left on the field, has the potential to significantly increase the percentage of soil water stable aggregates and thus soil quality.

The carbon and nitrogen content (%) of each aggregate class was determined. This adds a 'quality' measurement to our 'quantity' measurement of the abundance of water stable aggregates. We found that, regardless of tillage treatment, the highest percent of carbon or nitrogen was in the 1.0-2.0mm aggregate size class. Differences between tillage treatments in percent carbon and nitrogen were greatest for the larger aggregates and nearly the same for the smaller aggregates. These results indicate that quality as measured by carbon and nitrogen content will be significantly improved with higher percentages of larger aggregates. Of the seven rotations we measured, continuous rice had the highest carbon and nitrogen values for the largest aggregate class. While much smaller in terms of abundance the larger aggregates appear to be of better quality; particularly in the no-till systems. This, combined with a relatively high percentage of larger sized aggregates in the rotations where rice appears more frequently, suggest rice is a good crop to increase soil quality and that the more frequent it is found in rotations that are no-till the better soil quality will be.

2. *Soil resistance:* Soil resistance is a physical measurement that can give an indication of how easily it will be for a plant to penetrate the soil. We compared soil profiles in no-till and conventional-till rotations to a depth of 16" at 2" intervals. For all rotations there was a decrease in resistance in the 4-14" depths in the no-till plots compared to the conventional-till plots. This decrease in soil resistance was associated with increased soil moisture. Some of the lowest resistance recordings were with the continuous rice, corn-rice, and soybean-rice rotations. The relationship of increased soil moisture with decreased soil resistance support our finding that notill rice does not require flushing and that fields can be drained earlier because of additional water being held in the soil.

In the last two years our no-till rice grain yields have been greater than the conventional till yields. This is due, in part, to improved soil physical and chemical properties in the no-till systems and a better understanding of how to manage no-till rice production. We are well past the 'plow' mind set and can show the benefits of making the change to no-till.

First Comes The Seed - Then The Stand

Presented by Dan Bradshaw

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Planting the seed is the first and most important step in producing a profitable rice crop. This goes without saying but the importance is sometimes not fully appreciated in the heat of making planting decisions. In a no till or reduced till situation, there are numerous factors which can, and at times do, reduce or make more difficult the obtaining of an optimum stand. A few of these factors are:

excessive soil moisture
soil too dry
excessive residue
soil borne diseases
insufficient seed/soil contact
soil plasticity

These and other situations and possible solutions will be discussed from the points of view of producers and consultants.