

Maximizing Fertility

Variable Rate Technology Provides Uniform, Higher Yields And A More Manageable Crop

JONESBORO, ARK. When his local co-op initiated a variable rate technology (VRT) program 14 years ago, Arkansas rice/soybean grower Mark Wimpy jumped right in. And he has remained exclusively with the program ever since – to the benefit of his operation and his pocket-book.

“Fourteen years ago when phosphorus and potassium were relatively inexpensive, it was

and release nutrients. Sometimes the ground will hold the nutrients and won’t release them so you have to apply more.”

Another benefit from variable rating fertilizer is more field uniformity in the stand. “The crop’s growth stages are more even, which is a huge benefit because when spraying chemicals and nitrogen, you want to spray once and not have to return three days later,” he says. “We need the efficiency and economics of spraying one



cheaper to make a blanket application than it was to variable rate the fertilizer,” says Wimpy, who farms south of Jonesboro, Arkansas. “However, I believed variable rate fertility was where I needed to go. The co-op’s selling point was that although my cost would increase on the front end for a few years, it would then flatten out to the same as making a blanket application, and then actually drop off.

“Additionally, we were hearing about nitrates in the water and excessive fertilizer runoff. I didn’t want to overfertilize because of unnecessary cost and possible runoff. And VRT offered a way to avoid this potential problem.

“I also farmed some new ground where we had removed trees and rice would grow too high and fall down. The heads were so loaded that the plants couldn’t support themselves and then we had a yield loss. That was partly due to over-fertilizing – we were applying more fertilizer than the plant could handle.”

Wimpy farms more than 3,000 acres of rice and soybeans, which he rotates 50/50 yearly. The first year with VRT, he started with 20 percent of his acreage on both rice and soybeans. He used it on some highly productive fields as well as some lower producing fields because he wanted a comparison. When he compared his costs and yield bump at the end of the first year, he decided to variable rate his whole farm.

Yield Mapping

The same year that Wimpy began his variable rate fertilizer program, he also bought a yield monitor for his combine. The first year he yield mapped a few fields, he could not believe the yield differences documented within the same field. “I had 100-bushel rice in several acres and then I’d get off in an old slough where the ground was a little richer and I would cut 280- or 300-bushel rice,” he says. “Some years when those spots were hitting 300 bushels and the weather was perfect and the rice was left standing, I made those high yields. But half the time they blew down and they yielded even less. The visual yield differences that I saw were backed up by the yield data.

“I was looking for crop uniformity; my yield maps mirrored what I saw driving around. I had over-matured areas and under-matured areas. It was difficult to get the crop uniform. I wanted to balance out my yield and my maturity across the field instead of targeting a specific yield goal.”

The co-op offered the options of doing a maintenance program to replace what the plants were taking out yearly or a fertility building program, which is what Wimpy selected. He later went through some tough, economic years when it was difficult to afford the cost of the fertilizer; everyone else in the co-op’s pilot program either cut back or dropped out of the program completely and did not fertilize soybeans. “About four or five years into the program, the co-op approached me and said that most growers were backing off and going with a maintenance program because fertilizer prices had spiked,” he says. “But I saw good results and I stuck with it.”

Wimpy’s fertilizer costs increased about \$20 per acre on his phosphate and potash applications his first three years with VRT. But when he resampled the fields three years later, his fertilizer requirements had dropped considerably.

“When I resampled in year three, the \$20 more per acre cost of variable rating my fertilizer dropped down to what a blanket application would’ve cost,” he says. “However, it was more efficiently applied and my yields had gone up.”

Additionally, his rice and soybeans yields were becoming more uniform across the whole field. “Now my yield maps showed that instead of ranging from 100 to 300 bushels per acre in the same field, my lows had increased and my highs had decreased,” he says. “I’m now hitting a median. Even though I no longer have the high yield spikes in the fields that I used to have, my median average has brought up my overall average, which was my goal. My fields are yielding more than they were before when I had those wide disparities. My five-year average is 175 bushels per acre.

“I have been on a steady yield increase while my costs have been decreasing. Today, the cost of fertilizer is less than it would be if I blanket applied it – and that’s after building up the field’s fertility level. I’d say it takes three to six years to get to that point, and after the third and fourth sampling, there are areas where it seems like I’m still applying excessive amounts of fertilizer and there are areas where it seems like I’m hardly applying any. But that’s the difference in the capacity of the ground to maintain

time. VRT helps all plants in the field remain in the same stage, which helps timing of fungicides and everything else that you do to that plant. If the whole field is uniform, then your results will be uniform.”

Variable Rating Lime

After first concentrating on variable rating his potassium and phosphorus, and seeing the benefits of doing so, Wimpy next wondered what else he could do to increase his yields. He decided to variable rate lime. “I have variable rated lime over my whole farm for the last five years,” he says. “My pH never was that much out of balance so it allowed me to concentrate on fertilizer for several years and then work on lime while I’m still doing the fertilizer.

“Proper liming utilizes the fertilizer more efficiently and it’s more cost-effective. Compared to making a blanket application, we just treat a few acres. I might lime a 100-acre field but only have to treat 18 acres. I probably have done 50 fields over the last five years and there probably have been just five or six that we had to make a blanket application and that was early on. Now we just spot treat.

“But 20 years ago they couldn’t go out and spot treat lime or fertilizer. It wasn’t site specific. GPS and computer programs and improved application trucks have enabled us to do this. We used to farm fields; now we farm grids.”

Field Concepts

Four years ago, this Arkansas producer began using the VRT services offered by Field Concepts, a division of Strike Zone Ag, which is a consultant-designed program that provides site-specific grid sampling and variable rate prescriptions for dealers, consultants and growers. Field Concepts’ benefits include expertise on software and equipment purchases; customizable equation writing; support in equipment and software set-up; and fast, reliable in-field tech support.

“I started with Field Concepts when they began their business,” Wimpy says. “Their 2 ½-acre grid sampling is very site specific, which has been made possible by GPS and the computer programs that gather this data and make prescriptions. I’m very pleased with their program. Anytime they come up with some new technology, they pass it along to growers. It’s an on-going, constant improvement – which is the way I farm.

“A grower can get as involved with VRT as he wants or he can let the Field Concepts staff take care of it. I value their opinion and they value mine. We’re a team. We’re all working for an efficiency goal, a yield goal and a profit goal. Their fertilizer prescriptions are highly accurate and they make them available to my dealer and download it in their trucks. All I have to do is call my dealer and say a certain field needs fertilizing and there are no mistakes about what has to be applied because we all have the same prescription and know exactly which fields needs treating.

“This year my dealer called me and said he was sitting in a field and there was something wrong with the prescription; it was not coming up like it should. I made one call to Field Concepts and they fixed the minor computer glitch over the telephone and the dealer immediately applied my fertilizer. It’s comforting to know that the support is there when you need it and that they follow up to make sure the job is done right. They provide great tech support and answer any of my technical questions. They get above my head sometimes, but that’s why I hired them – that’s their department. I have goals that I want to achieve, which I can’t accomplish without Field Concepts.

“One of their biggest pluses is their staff; they have very good hands-on people. They’re not sitting in an office; they’re always in the field. They know what’s going on and they take pride. And that’s why they’re being successful and why I want to be part of their team. They’re very accessible, just one phone call away.

“More growers are moving to VRT because they’re seeing its benefits. The fertilizer price spike a couple of years drove many growers to VRT, but that spike didn’t affect me as much because I had been in the program for so long that I was already putting out minimal amounts. I’m not as vulnerable to price spikes as other growers because my fertilizer rates have actually gone down because we have our ground in the position it needs to be for the crop.”

For more information about Field Concepts, call 877.336.8262 or go to www.strikezoneag.com.