

Fine-Tune Your Fertilizers

New management techniques nearly double a grower's yield in one season.



Photo courtesy of Donna Hazlewood

By changing management techniques, grower Steve Walker III (left) and certified crop advisor Rusty McLeod are working to increase watermelon yields to 100,000 pounds per acre.

By Rosemary O. Gordon
Managing Editor

YOU'VE heard this story before. A grower sows his crop and after harvest, he takes it to market. Prices, however, are so low that he barely makes a profit — and sometimes he doesn't make any money at all.

This sounds depressing, but a grower in Monticello, FL, who fell prey to this situation, changed the outcome for his watermelon crop by altering management techniques and implementing new ones. Steve Walker III, owner of Walker Farms in northern Florida, had been growing corn, soybeans, and watermelons for years. He also had cattle, but as the economic climate changed, he had to change as well. "We've scaled back in the last 10 years," he says. "Now we are strictly growing watermelons."

Walker says it was almost to the point

where he was growing watermelons for fun. "The problem was that 40,000 pounds [of watermelons] per acre just doesn't make enough money," he says. The last few years he was growing seeded watermelon that sells for a nickel a pound. Because of the low prices, many growers in the area have thrown in the towel, leaving just two commercial watermelon growers in Florida's Jefferson County.

"Unfortunately, we seem to get more than our fair share of low prices," says Walker. "Because of the increased amount of dollars it was taking to produce the crop, we decided that what we were doing simply wasn't working."

Make Lemonade

The expression, "When life hands you lemons, make lemonade" is apropos here. Faced with the dilemma of how to increase yields on his 62 acres, Walker decided to switch to seedless watermelon

because prices for seedless were between 7¢ and 14¢ a pound.

In 2001, he teamed up with Rusty McLeod, a certified crop advisor and representative of United Agri Products, Inc., and began to change the crop management technology with the goal of raising the yield to 60,000 pounds per acre. That season, however, Walker was handed some lemons. About 14 inches of rain fell in a week's time, causing tremendous damage to the crop.

Undaunted, Walker and McLeod tried again this season. They used watermelon transplants from Abbott & Cobb's pollinator Summer Flavor 800 and the seedless variety Summer Sweet 5244.

Field preparation began in January and the plants were set in the latter part of March. For nematode control, Walker used Telone II (1, 3-Dichloropropene, Dow AgroSciences). He also added about 600 pounds of a preplant fertilizer con-

taining sulfur, manganese, zinc, and boron, Top Yield 11-18-13, from Waukeenah Fertilizer Co. The fertilizer was applied before laying the plastic mulch.

Two weeks after the watermelons were transplanted, SuperBio, a soil microbial booster from Advanced Microbial Solutions, was injected into the soil at one gallon per acre. "This soil microbial booster puts the good microbes back into the soil after the fumigant destroys the good and bad soil microbes," says McLeod.

"The purpose of any microbe in the soil is to enhance the nutrient uptake by converting the fertilizer from a nonavailable plant form to a plant form," explains McLeod. "Microbes are what control your water holding capacity and help with root development," he adds.

Walker also incorporated other materials to keep nutrients in balance including the plant activator, Messenger (harpin protein, Eden BioScience), and two plant growth regulators: BM 86 from Goemar, Inc., and PGR IV from Micro Flo.

Big Changes

It was Walker's fertilizer program, however, that underwent the most dramatic changes. He had been drip irrigating his fields, using drip tape from Roberts Irrigation Products, but had never applied fertilizer through drip until McLeod got involved.

About 14 days after transplanting, Awaken, a foliar nutrient containing plant growth regulators from Loveland Industries, was applied to the melons for root growth. At three weeks, tissue samples were tested in a lab to get a reading on the nutrient levels in the plant. "When nutrients dropped into the middle of the adequate range, that was when we started to inject fertilizer," says McLeod.

It wasn't a once-a-week or a once-every-few-days application plan, either. McLeod says fertilizer was being injected five times a week due to the sandy soil. Because of irrigation practices and the rate at which the watermelons were growing, he didn't want to push the fertilizer out of the root zone of the plants. So rather than putting a heavy dose out once or twice a week, the fertilizer was applied almost daily, says McLeod.

As the 40,000-pound mark approached, potash levels fell to a low range when nitrogen was adequate. Walker supplemented with 707, a nitrogen/potash combination from Big Bend Fertilizer, when Tessenlerlo Kerley's Trisert-K+ 5-0-20-13S potassium thiosulfate was injected through the drip at 4 gallons per acre per week.

McLeod says they supplemented with thiosulfate fertilizers instead of increasing nitrate fertilizer levels because nitrate fertilizers promote vegetative growth and not fruit set. "If nitrogen is adequate, then we can use the thiosulfates that contain little or no nitrogen," he says. "This allows us to balance our magnesium, calcium, and potash levels."

As the yields increased to nearly 60,000 pounds per acre, the calcium magnesium levels began to fall and calcium nitrate and magnesium nitrate as well as Tessenlerlo Kerley's Thio-Sul 12-0-0-26S ammonium thiosulfate liquid fertilizer were injected through the drip to bring the levels back up to the proper range.

Despite the additional fertilizer appli-

cations, the melon vines and the melons were sucking the nutrients out of the soil. "With 40,000 pounds, we weren't going to have any problems, but as we kept making more and more melons down here in the sand, we needed to supplement fertilizer," says McLeod.

At the end of the season, the marketable yields were pushed to over 70,000 pounds per acre. The plans for 2003 include increasing the per-acre plant population by more than 400. This increase will push the number of plants from 1500 per acre to nearly 2000.

Show Me The Money

Walker says his goal is to increase yields to 100,000 pounds per acre. In terms of cost, he says his per-acre expenses increased by \$200.

"It's been a fine-tuning of the products used and the application process," he says. "We used to put all of our fertilizers down at one time, and we did it before planting. Now it's like taking care of a child. We are feeding [the watermelons] every day exactly what they need. In addition, we are not putting products out there that the plant can't use, and we've traced back some old fertilizers that the plants really weren't using at all."

Although the cost to do this hasn't been too steep under McLeod's plan, the time commitment has been a big one. The program is very management intensive, says Walker. "It's a seven-day-a-week operation, and if you aren't willing to commit to it, it isn't going to work," he says.

For Walker, the commitment obviously was well worth it. This year, he cut the watermelons six times. Three or four cuttings is usually considered a good harvest season. "You couldn't tell we had walked through the vines after the sixth cutting, that is how healthy they were," he adds.

When asked about profit, Walker says he simply wants to be guaranteed that there will be a crop every year. "This is my crop insurance," he says. "If I can avoid a natural disaster like the one in 2001, we feel these yields are obtainable every year. We'll just keep fine-tuning as technology increases." AVG

Direct comments or questions about this article to rosemary_gordon@meisternet.com.

Pest Patrol
WALKER Farms owner, Steve Walker of Monticello, FL, nearly doubled his watermelon yields with new management strategies focusing on intensive nutrient management. Walker intensified other aspects of his programs as well. He stepped up his fungicide program and began spraying earlier and increasing his volume of sprays per acre to provide better disease control. He began with Bravo 720 (chlorothalonil, Syngenta) and applied it three times before fruit set. After that, he applied Quadris (azoxystrobin, Syngenta), Topsin (thiophanate, Cerexagri), Penncozeb (mancozeb, Cerexagri) and Gavel (mancozeb, Dow AgroSciences) in a rotational program on a 10- to 14-day interval. Insects and weeds were less problematic, but to control an outbreak of aphids he applied a single application of Capture (bifenthrin, FMC Corp.). Walker was able to keep weeds in check with the herbicide Strategy (ethalfuralin, Platte Chemical Co.).