

FARM OF THE FUTURE

Working lands for ecosystem services

The Watson Partners Farm | Minnesota River Basin and the Southern Minnesota Beet Sugar Cooperative

Watson Partners is a 7,500-acre farm in the Minnesota River Prairie region that receives payments for planting cover crops on its sugar beet fields as part of a new phosphorus trading program developed by its sugar beet cooperative.



The Southern Minnesota Beet Sugar Cooperative (SMBSC) serves all sugar beet growers in the Minnesota River Prairie region. It processes their sugar beets, sells the sugar, and passes earnings back to the growers, its shareholders. SMBSC wanted to increase its processing capacity in the 1990s, but phosphorous discharge limits under the Clean Water Act restricted the necessary expansion of its wastewater treatment facility. Working with the Minnesota Pollution Control Agency (MPCA) and the Minnesota Center for

Environmental Advocacy, the cooperative more than tripled its treatment facility's capacity by implementing a phosphorous trading program.

The SMBSC wastewater treatment facility is allowed to discharge an additional 2,500 pounds of phosphorous per year if it acquires sufficient phosphorous reduction credits. SMBSC growers generate these credits for the cooperative by implementing best management practices: cover crops and stream bank stabilization. To account for sub-optimal implementation, scientific uncertainties, and other risks, SMBSC collects credits worth 6,500 pounds of phosphorous annually, about 2.6 times the discharge limit.

Curt and Eric Watson, the Watson Partners, are proud fourth and fifth generation farmers. They wanted their cooperative's beet processing facility to expand and recognized that cover cropping was an essential step. Like many other growers, Curt and Eric adopted the practice because it was the right thing to do for them and for their fellow growers in the cooperative.



The new farm. In addition to corn, soy, and sugar beets, Watson Partners now provides:

Habitat and restored wetlands (40 acres)

Forty acres of the farm are kept out of production and registered with the USDA Conservation Reserve Program, the USDA Conservation Reserve Enhancement Program, and Reinvest in Minnesota, a critical habitat match program in the state. Enrollment in these conservation programs provides Watson Partners \$641 per year.

Nutrient reductions (2,179 acres)

The 2,179 acres planted in sugar beets are cover cropped with oats to reduce phosphorous loads as part of the phosphorous credit trading program. Watson Partners is paid \$4/acre to help defer the costs of cover cropping. The cover crops improve soil quality and have led to an average increase in sugar beet yield worth \$55 per acre.

The business side. The \$4 per acre payment only accounts for half of the cover cropping expenses, but Watson Partners found that it still made financial sense to generate credits. Cover crops improve the farm's soil quality by reducing crusting and erosion. They also prevent the wind from uprooting premature sugar beets. In 2009 the mean revenue per sugar beet acre for growers in the trading program was 2.23 percent higher than mean revenue for growers with no cover crop. Watson Partners and other growers realize the financial benefits of cover cropping

through a combination of the payments, increased crop yield, and the expanded SMBSC processing capacity. A win for the environment, the growers, and the cooperative, cover cropping is now a socially encouraged best practice.

Today, 565 SMBSC growers produce 750 million pounds of refined sugar from 2.6 million tons of sugar beets each year. The cooperative employs close to 350 full-time employees and infuses \$170 million annually into the local economy. It could not have scaled up its business model without the growers' engagement in the phosphorous trading program.

Farm Revenue Sources (Gross), 2009

Source	Income	Customer
 Sugar beets	41 %	Southern Minnesota Beet Sugar Cooperative (processing)
 Corn	51 %	Local elevator (primarily)
 Soybean	7 %	Local elevator (primarily)
 CREP, CRP, and State funds	< 1 %	USDA; State of MN
 Phosphorus reduction credits	< 1 %	Southern Minnesota Beet Sugar Cooperative

Revenue calculations and all financial information provided by the landowner.

LESSONS LEARNED

Regulation drives demand. The phosphorous trading program would not have happened without a Total Maximum Daily Load (TMDL) requirement for the Lower Minnesota River under the Clean Water Act. If another regulated entity in the basin seeks a permit to expand its phosphorus discharge, the sugar beet growers may be able to realize an additional revenue source by selling excess credits to the entity for their compliance with the TMDL.

Landowner cooperatives can bring environmental improvement to scale. Working through the cooperative enabled greater, more cost-effective impacts on water quality in the basin than would many small projects involving multiple landowners. Because ecosystem services function at a landscape scale, it makes sense to aggregate best management practices through group participation. At the same time, the greatest challenge of the trading program is the magnitude of SMBSC's administrative work maintaining contracts and verifying performance on an annual basis.

Strong incentives are needed to turn a new practice into a social norm. Today 72 percent of the SMBSC growers cover-crop their sugar beets, but several factors had to coalesce for cover cropping to become the rule. First, the Minnesota Pollution Control Agency and the Minnesota Center for Environmental Advocacy made the effort to design a trading scheme that worked for growers. Second, both the nutrient reduction payment and crop yield improvements encouraged growers to give the program a chance. Third, growers felt compelled to implement the new practice because of their ownership position in the cooperative and their close ties with the processing facility and their fellow growers.



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