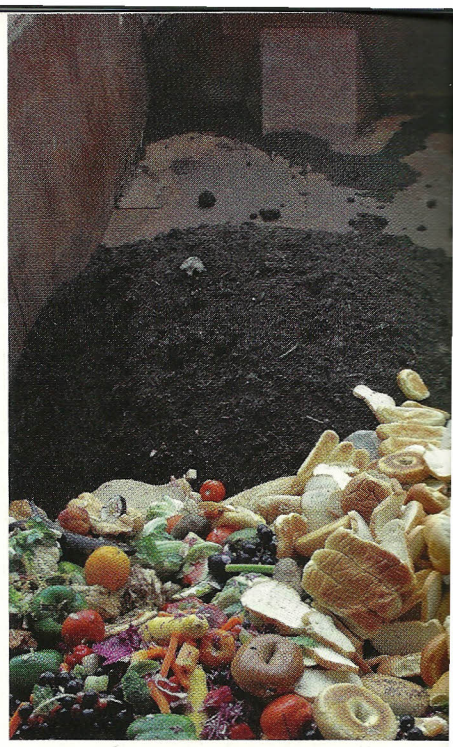

INSTANT INFRASTRUCTURE

GROCER, COMPOSTER AND QUARRY OPERATOR DIVIDE AND CONQUER

Photos by Dan Sullivan

Nitrogen-rich food waste (above) is placed in the roll-off container before wood chips are added to absorb liquid. Wood chips in the foreground (at left) and hay in the background offer key carbon ingredients.

Innovative program will offer composted preconsumer food waste back to customers as nutrient-rich soil amendment.

Dan Sullivan

A NEW partnership between a grocery store chain, an eastern Pennsylvania composter and a quarry operator could serve as a model for other regions committed to recycling organics but lacking the infrastructure to do so.

In September 2010, Weis Markets — which operates 164 stores throughout Pennsylvania, Maryland, New York, New Jersey and West Virginia — began a pilot project with composter Two Particular Acres in Royersford, Pennsylvania, to process organic residuals from four locations. Gearing up for the possibility of taking on the entire chain, Two Particular Acres joined forces with the H&K Group, an aggregate producer operating in Pennsylvania and New Jersey. With more than 40 operating quarries, a fleet of more than 700 trucks and other necessary equipment and real estate, that partnership means instant infrastructure and the regional capacity to handle the incoming organic feedstocks.

"Weis made a commitment to changing its practices to incorporate sustainable operations," says Patti Olenick, Weis's first-ever sustainability specialist who began her new post last spring. "Currently we are calculating our carbon footprint baseline with the goal of finding ways to reduce our impact on the environment. The largest fraction of the waste stream at a grocery store is food waste. If we can manage food waste through other means than just landfilling, we will be reducing our trash disposal costs and reducing the company's carbon footprint — which is the ultimate goal."

It's not just about saving money, says Olenick, adding that the 98-year-old grocery chain recently established a sustainability team with representatives across all departments. "If you can do something green and keep the bottom line as a positive, that's a no brainer," she says. "But we didn't look at food waste recycling as solely a cost-saving measure. The real key is that it's a closed-loop system. We plan to put the finished product back on the shelf to sell. We may also use the compost for wetland mitigation, landscaping mulch or as a soil amendment on our new construction projects."

DECENTRALIZED EXPANSION

Just a few years ago such a program would probably not have come to fruition, suggests Ned Foley, owner of Two Particular Acres, who has been composting commercially for nearly a decade (see "Composting In The Suburbs," May 2004) — but attitudes have shifted. "You just have to figure out the economic model and what can make it work." For Foley, that model included partnering

with the H&K Group to allow for a decentralized operation and regional flexibility.

"We don't expect to see much more than 30,000 to 40,000 tons at any one particular location," he says. "This is very different than what anyone else has done in the U.S." The partnership will operate under the name "American Biosoils and Compost" and provides H&K, Two Particular Acres and Weis each with a new revenue stream.

Dave Sands, regional manager for H&K's hardscape and landscape materials retail division, explains that his company is vertically integrated, with each quarry operating with a high level of autonomy and responsible for being a good neighbor in its own region. "Every quarry does not have our name on it, but it's all under one umbrella," he says, adding that such independence and ability to adapt should lend itself well to the new endeavor.

As a veteran composter, Foley couldn't agree more. "There is a saying that every farmer is exactly different," he says. "It's the same with composters. You have to figure out what works for you."

Foley had struck up a friendship with John Haines — the "H" in H&K — a few years ago with the idea for the partnership percolating over time. When Weis hired a sustainability director who happened to be both a veteran of the Pennsylvania Department of Environmental Protection (PaDEP) and a compost expert, the stars lined up to make a move.

"We didn't want to handle only stores in a particular area," says Foley. "We wanted to do the whole chain." H&K's Sands adds that his company both has and sees a tremendous need for biosoils suited to specific engineering projects and that being in command-control of a compost and blended soils operation offers a tremendous advantage in the marketplace.

Already permitted composters could take in food waste in amounts equal to one half of the municipal yard trimmings received.

Ned Foley of Two Particular Acres (left) and Dave Sands of the H&K Group are heading up a pilot program to compost food waste from four of 164 Weis Markets.

Toters are stored in walk-in coolers to stabilize the contents until they are collected.

STARS (ALMOST) LINE UP WITH NEW PERMIT

Initially, the plan was to operate under a new modified General Permit 30. The modified permit would allow already permitted composters to take in food waste in amounts equal to one half of the municipal yard trimmings received — in other words, one part nitrogen-rich food waste to two parts carbon-rich yard trimmings. State grants for equipment, technical assistance and training have helped municipalities build the infrastructure to compost their own yard trimmings, Olenick explains. "That was all set up just for yard waste, so we said 'Let's try to get an additional waste stream in there — it helps the composting process, and the infrastructure is already set up.'"

Municipalities compost yard trimmings for the most part as a service to the community, she adds, but those programs are far from a cash cow. Accepting food waste could both add a revenue stream and improve the biological diversity, and thus the quality, of the compost. "If there was a school involved

... there could also be an educational component — science and biology. It makes sense; there is a lot of opportunity there."

Foley has been processing limited amounts of food waste since 2003 under a Pennsylvania on-farm composting permit he helped develop that allows farms with a minimum of 5 acres to take in a maximum 500 tons/year of food-waste feedstocks. "They don't want you to do any speculating or stockpiling," he says. The new modified General 30 Permit would allow Foley, or anyone else who already has a composting permit, to take in as much food waste as they can handle on their site as long as they take in twice the amount of yard debris. Weary of waiting for what he described as a "heightened yard waste permit" to materialize and ready to take on more Weis accounts in partnership with H&K, Foley went back to the drawing board with PaDEP hoping for more immediate results.

"Essentially, they haven't yet issued or allowed for the new General Permit 30," says Andy Curtis, an environmental scientist with the H&K Group. "So we're making an application under a new general permit with permit provision and conditions so we can move forward until it rolls out. That's where we're at. Essentially, we're just pulling to-

American Biosoils and Compost is poised to immediately open at least four more sites in eastern Pennsylvania.

gether all the emerging requirements to set up yard waste as well as food waste composting sites in eastern Pennsylvania."

Curtis expects to deliver the preliminary application to PaDEP in Harrisburg by Thanksgiving, after which the state agency has between 90 and 120 days to issue a permit. "It can go quicker, but that's what they allow themselves," he explains. With Foley's farm operating as the test site for the initial four-store pilot project, American Biosoils and Compost is poised to immediately open up at least four more sites in eastern Pennsylvania — once a permit is in place — with a rollout of a total of 20 sites not far behind.

The mandate on municipalities to compost their yard trimmings creates some challenges for composters, says Foley. "It's difficult when one of the primary ingredients is extracted out of the system," he says. The municipalities have also struggled to comply. "By and large, municipalities don't even want to do it; we're talking thousands of yards of leaves." A situation in one of the more populated counties in Pennsylvania bears out the difficulty as well as the potential opportunity for public-private partnerships. Citing budget woes due to economic hard times, the Lehigh County Organics Recycling Center — which services municipalities within its jurisdiction — recently announced plans to cease operations by the end of the year. This would put the onus back on the municipalities. This development interests the newly formed American Biosoils and Compost, and it intends to bid on a projected RFP to manage the facility.

An Airlift separator helps remove plastic and other lightweight materials from the compost.

SAME FOOTPRINT, MORE COMPOST

In order to manage more materials on the same footprint, Two Particular Acres switched in 2006 from windrow composting to aerated static pile (ASP) technology utilizing an O2 Compost System designed by Peter Moon of Snohomish, Washington. An electric blower attached to 4- or 6-inch HDPE perforated pipes running the length of each pile at ground level creates airflow throughout, thereby maintaining aerobic conditions while maximizing the oxygen level (as compared to the turning action of a conventionally managed windrow, which rapidly volatizes oxygen). Temperature is regulated by adjusting the airflow.

Pointing to the homes a couple hundred yards away, Foley says he has had no trouble with odor complaints. All active piles are capped with finished compost, functioning as biofilters. "Being local can still be big," he says, surveying his own compost yard backdropped on this clear late-summer morning by Mc-

Temperature in an O2 Compost ASP System is regulated by adjusting the airflow coming into the pile.

Mansions in the foreground and the two imposing stacks of the Limerick Nuclear Power Plant in the far distance.

Foley explains that blended feedstocks — heaped into piles resembling conventional windrows and ranging in volume from around 250 yards to 400 yards — undergo a 4-week composting phase under aeration to meet PFRP and that he is "playing around with second and third two- to three-week phases" to achieve greater stability and drying for faster screening — depending on particular feedstocks, the weather and time of year — and with multiple stages of aeration (including experimenting with the aforementioned varying diameters of perforated pipe). Currently the piles are out in the open, but Foley plans to erect open-sided hoop structures — an 80-foot building for the final aeration phase and dry down and a 60 foot building to store dry materials for spring. "Basically we're using Two Particular Acres as an experiment before we do a full rollout at 20 sites," he says, adding that keeping material dry enough to "fly out of the screener" is critical to avoiding bottlenecks when processing high volumes of material. As well, he says, covering the material keeps storm water from turning into leachate. "That's the purpose of a pilot project," he says, "to work out all the bugs."

Foley has traditionally sold his compost at three price points — retail sales by the cubic yard to local homeowners in the community, to landscapers and wholesale in bulk garden centers — but has recently eliminated the latter market in order to keep his product in the $25 to $30 per cubic yard range. Plus, he says, landscapers not only bring in feedstock, they pay for the privilege.

Besides food waste, feedstocks at Two Particular Acres include leaves and yard trimmings, shredded cardboard, bedded livestock manures (straw, shavings) and mulch hay grown on Foley's roughly 80 acres, about half of which is leased from a neighbor. "I grow high-quality hay for the horse market," he says. "Everything else winds up in the compost. It's almost as valuable putting it into compost as selling it to farmers.

"Generally speaking there are eight or nine different ingredients — each pile is made of up multidimensional feedstocks which means greater biological diversity. Essentially, what we are selling is biological diversity." Foley says that the O2 Compost System increased his capacity at least tenfold while allowing for more flexibility. "On our pad we could build five windrows of compost that required a 10- to 12-week period to reach maturity in the turned windrow system. We could cycle through the pad three or four times per year. One ASP is the same volume as the 5 windrows, and they are built one per month. The 12 ASP piles per year is further multiplied by the four ASP piles we operate at a time. And you can build the piles to whatever size your equipment will allow, whereas with a windrow turner the size is dictated by the turner."

Utilizing either a skid steer or front-end loader, Foley mixes the whole fresh recipe up into a pile, caps it with leaves and straw to control odor and lets it "steep" or "pre-rot" for two to three weeks before moving into the main four-week aerated-pipe phase. "By letting it sit and get started, it's much further along for the four-week phase," he explains with a tone of enthusiasm rivaling that of Julia Childs in the kitchen. "It's fun stuff."

FOOD WASTE COLLECTION

Foley collects the food waste from the Weis stores participating in the pilot program. He hooks up a roll-off container to his Mack DM690S truck to transport the separated organics. A bucketful of ground chips is added to the roll-off container to absorb any liquid. On the day *BioCycle* visited, Foley and Sands were doing the 10-mile run to the Weis in Pottstown.

Black 96-gallon toters labeled "COMPOSTABLES ONLY" are stored in a walk-in cooler to keep their organic contents stable. Sands wheels the toters to an overhead door behind which Foley has pulled the truck and is waiting at the loading dock. Inside of a half hour, they have wheeled and emptied a dozen toters into the roll-off container. The Weis stores have been averaging about 1 ton per week, Foley says, with materials collected one or two times per week depending on store volume and activity.

"We do 100 percent of the hauling, 100 percent of the composting and we will do 100 percent of putting it in bags and bringing it back to the stores," says Foley as he and Sands hoist the last of the toter contents into the roll-off container. Store manager Jim Bechtel says his employees have gotten right on board with the program. "We're always looking for ways to help cut costs," he says. "Not only does this help the environment, it helps the store's profitability. We're down to one [trash] Dumpster a week, and we've eliminated a whole Dumpster a week — that's fantastic at $250 per pick-up." Bechtel looks forward to the day when Weis carries compost made with its own food waste.

All parties involved in the program express excitement about the roll-out of the composting initiative. "It's neat to actually have the opportunity to create a business venture out of something more geared toward sustainability — food and fiber production, landscaping and horticulture, and getting grocery stores to get down to zero waste," says H&K's Andy Curtis. "As part of our overall corporate sustainability program, one future goal of Weis Markets is to strive for 'zero waste' operations efficiencies," confirms Olenick. If we can close the loop, divert waste, save landfill space, protect our bottom line and offer a recycled product back to our customers, we will have achieved a sustainable program. When Weis brings compost back to the stores for sale, the customers appreciate the effort by Weis to offer a product that once was considered a waste and to actually see this natural soil product back in their hands." ■