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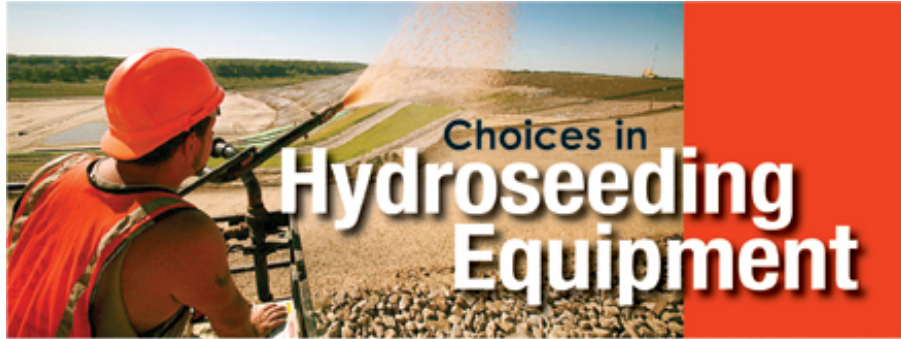


PHOTO: HYDROGRASS TECHNOLOGIES

*A sampling from around the country*

By Carol Brzozowski

When Andrew Kellar developed a business plan for starting a hydroseeding business four years ago, he seized an opportunity in what he thought was fertile ground: Only a dozen companies were providing hydroseeding services in a 200-mile radius.

Kellar, owner of Simply Green in Stratham, NH, bought a small, 350-gallon hydroseeding machine and quickly outgrew it within a year and a half. Last year, he upgraded to a 1,000-gallon machine and anticipates outgrowing that one as well as he prepares to add another machine to his business.

Kellar's foray into a virtually untapped market in his region paid off. "My first year in business, I did about 10 acres of coverage," he says. "In 2005, I was over 80."

Additionally, he added three people to what started out as a one-man operation. Building his business through word of mouth, Kellar now derives 90% of his income from hydroseeding. Additionally, he provides services in fertilizing, weed control, and lawn mowing. Some 40% of his seasonal business is residential, with the majority of it being commercial—work with developers, site contractors, landscapers, and irrigation companies.

His focus when picking appropriate equipment for his business is efficiency, which is why he upgraded to a larger-capacity machine. Those who are successful in the hydroseeding business know the key is smooth integration of several factors—well-trained human resources who are given top-of-the-line equipment with which to do the job.

"Before, I was filling my smaller machine up to six times a day; now, I am only filling it two to four times on an average day," he says. "The efficiency of the bigger machine is unbelievable. The fact that I can do that much more work by myself speaks volumes as to its efficiency level."

Kellar uses Easy Lawn's Landscaper Series L90. The unit features a polyethylene tank, a 4-inch by 3-inch HPV pump, full port brass ball valves, a manual reel capable of holding 300 feet of hose, a dual-axle trailer, 15-gallon fuel tanks, dual fill openings so the unit can be filled while adding mulch, three galvanized agitation tubes, one straight and two larger fan nozzles, and a top agitation jet. The machine is a standalone trailer unit, enabling Kellar to negotiate all types of sites.

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Photo: Selby's Soil Erosion Control

One of the largest erosion control specialists on the West Coast, Selby's Soil Erosion Control own nine Finn HydroSeeders: two T-280s and seven T-330s



Photo: Selby's Soil Erosion Control

The company also performs straw blowing—utilizing its Finn B-70, one of its five B-260s, or its customized B-300—on private developments as well as on highways. .

a bigger machine—I would probably keep this machine for the term of the lease—but I would very likely see myself adding another machine so I could send another guy out in a different direction to take care of my small-to-medium-sized jobs so I can be handling the medium-to-large-sized jobs.”

Kellar praises the “superior” performance of his equipment. “Out of all my business, up to 20% of it is redoing other hydroseeding operators’ work,” he says. “Sometimes it’s a work ethic issue; sometimes it’s an equipment issue. I’d like to think it’s an equipment issue, as the machine I have is fantastic.”

In another challenging situation, Kellar had been spraying a subdivision area on a large hill during heavy spring rains. On each side was about 30 to 40 feet of slope, sloping away from the road into culverts. Three days after he sprayed, it rained nonstop for seven days, bringing almost 12 inches of rain.

Kellar had lost about 5% of the material, and it took at least three weeks to germinate. But once the ground temperatures warmed up, everything popped up and the entire area was completely

Kellar says he uses a 50-50 blend of wood and paper in the jet agitation system.

“It is also capable on the road projects to run a 70-30 split, and now there are new products on the market, such as a bonded fiber matrix product US Gypsum has just come out with, that can run through the machine as well. You don’t need to have the big machines to run some of those thicker mulches,” Kellar contends.

Kellar says he has 200 feet of hose and has yet to run into a job he can’t service. And Kellar has seen some challenges.

“In the worst-case scenario, I’ve had to drive across some of the loamed-out areas and rake it out as I came back across if it was a really far distance, but the machine has such a powerful engine and pump system that I really have no problems spraying out at 200 feet,” he says.

Another challenge: a slope project that measured 200 feet from bottom to top.

“I had to bring my machine to the bottom of the hill,” he says. “There wasn’t anywhere I could access from the top down, and I was able to go all the way up 200 feet. A rate of 1,800 to 2,000 pounds per acre is what I was spraying out of the machine. I was spraying about 15 to 20 feet from the tip of the hose with no problem.”

Unlike many in the business, Kellar leases his equipment. When Kellar went from his first piece of equipment to his second, he knew instinctively his business would outgrow it within two years.

As for now, “I don’t know if I would necessarily go to

covered within six weeks, with no washouts or other erosion problems.

Rain also is an issue when hurricanes hit the southern part of the United States and head north with large amounts of rainfall.

Kellar also encounters challenges when customers call him in a “frenzy” because they’ve put loam around something without thinking at the time about erosion control needs. In one case, a customer put loam around a new pool installation and became concerned about the possibility of dirt eroding into the patio.

“I sprayed it really thick and added some mesh erosion mix. We got 7 inches of rain overnight, and I probably lost about 10% or 15% of the material at that time,” Kellar says.

Kellar is in the infancy stages of exploring additional market opportunities, such as golf courses —“Not necessarily on a new-installation level, because they usually hire the guys who use the big 3,000-gallon machines,” he says.

But an issue with many golf courses is accessibility, and when damage occurs, repair work is best done with a smaller machine that can be mounted on a utility vehicle with a strong engine and a pump that can travel the cart path. “We can still put 200 feet of hose on it and spray some of these tough-to-reach areas where a trailer- or truck-mounted machine would tear up the fairways and the turf around the golf course,” Kellar says.

He notes that there are regional differences in the popularity of hydroseeding, adding that those differences center on cost factors.

“In the central and southern part of the country, where laying down sod is much more common, part of the reason is the cost,” he says. “You can grow turf year-round there, but in other areas there are long winters.

“Sod is a great option, but I only recommend it to my customers who have less than 5,000 square feet of area and might be more higher-end customers,” he says. “Otherwise, it just isn’t cost-effective.”

The building market in the Northeast is exploding, creating new hydroseeding opportunities, he notes.

The pairing of good equipment with proper seed mixes creates better results, hydroseeding experts maintain. Last October, Kellar started testing a mix by adding winter rye, with good results. While he uses it mostly on commercial jobs, he’s also done residential applications. In one case, he sprayed a few subdivisions and within seven days noted a half-inch of grass growing in weather that dipped into the high 20s at night.

Kellar notes that area farmers use the mix to add nutrients. “It could keep growing through the wintertime and back off a bit when it gets really cold, but in the springtime, when it is time to cut it for the first time, that winter rye will just die off at the mulch,” he says. “Then the grass that will set dormant for the rest of the winter will start popping up in the springtime. But you can use it for late-season jobs.”

### **Modifying Machines for Specialized Jobs**

A few years ago, Jay Selby, president of Selby’s Soil Erosion Control in Newcastle, CA, had initiated research and development testing on a piece of equipment from Finn Corp. He is now reporting success.

Established in 1968, Selby’s is one of the largest erosion control specialists on the West Coast.

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The company has nine Finn HydroSeeders, of which seven are Finn T-330s and two are T-280s. The company has 35 employees.

The HydroSeeders are diesel-powered, with a 2,500-gallon working capacity for the T-280 and a 3,000-gallon working capacity for the T-330. The centrifugal pump puts out 400 gallons per minute at 130 psi and features twin mechanical paddle agitators and liquid recirculation. The material capacity for the T-280 is 8,000 pounds of granular solids and 1,250 pounds of fiber. For the T-330, it's 10,000 pounds of granular solids and 1,500 pounds of fiber mulch.

The trucks upon which the HydroSeeders are mounted vary from "aggressive" all-wheel-drive off-road trucks to highway trucks for state and government work, Selby says.

Selby utilizes straw blowing as well. "In northern California, there is probably more straw blowing than anywhere else in the US," he says. "It's pretty much regulated in northern California, whereas in a lot of other places, it's not."

The company owns a Finn B-70, as well as five B-260 blowers and a customized B-300 big bale straw blower. Selby is using the straw blowers not only on highways, but on private developments, too, such as one 800-acre project in the San Francisco Bay area.

Finn gave Selby research and development (R&D) funds to work on the customization of that B-300. While the company worked with Finn's engineers, employees did all of the customizing themselves.

In its original state, the B-300 had to be loaded two bales at a time from the side of the unit, and that wasn't feasible for a lot of highway work, Selby says. His company ran the machine for three months to see what workers liked and didn't like and came up with what they believe is a better way to run the machine.

"We shortened the conveyor system and put a crane on the front of it that can grab the bales off the back of the trucks, spin it around, and sit on the machine. It's pretty amazing," Selby says.

Advantages to the new system include ergonomics and the reduction in the amount of labor needed to do the job. "There is nobody picking up 75-pound bales, so Workers' Compensation issues went away. Nobody is on the back of a truck like they were before, and the speed we do the job picked up," Selby says. "We are able to complete twice as much with the same four guys as we were with the smaller bale blowers. The capacity of the machine is greater and the speed is tremendous."

Another cost advantage derived from the modifications is that large bales of straw are less expensive than small ones. "You save on material out the gate and then the productivity speeds up, too," Selby says.

He says he's not sure at this point whether the modifications of the machine will make it marketable, primarily because of the cost. His company paid \$80,000 for the machine—although Finn helped out with parts because it was part of a R&D experiment—and invested another \$60,000 in the modifications.

"Finn isn't too sure if many customers would be interested," Selby says. "After I started R&D on this, I found out they were only selling three or four of these a year. There's not a huge need for it, but I felt the reason no one was buying it was because there was no way to properly load it, so we came up with our own design."

Selby says he typically runs 300 feet of rigid hose on the back of all of the trucks. "We do carry soft hose in case we need to go farther," he says. "Anything larger than 400 feet of rigid hose becomes

so heavy it's unfeasible, so after that, we switch to soft hose and break it in 100- to 150-foot sections."

Selby's take on jet agitation versus paddles is that "there's no comparison between the jet agitation system and a hydraulically controlled paddle application. We apply every type of material out there, and the Department of Transportation requires us to put a lot of compost in our machines.

"You cannot get enough material in a machine with jet agitation. You keep running into all kinds of plugging problems as well. It's not even an option for us to entertain."

### Finding the Optimum Tank Size

Two factors drive the success of Allen Stewart's business, High Country Hydroseeding in Waynesville, NC. First, a more intense focus on erosion control concerns in his region is presenting increasing business opportunities. Secondly, Stewart has zeroed in on how to make best use of his time and equipment in adding to his company's bottom line.

Stewart's company specializes in hydroseeding for large infrastructures. He poised his company to do so because "it's much nicer to go to one place and spend four weeks working every day from one location rather than hopping from spot to spot." However, he notes, "We do use a lot of residential to fill in between the bigger jobs."

He's been in business for seven years and has three employees. His company provides a number of erosion control services, such as silt fence installation, hydroseeding, grading, and installation of erosion control mats for slopes and ditches. The company has work year-round.

"Most people think of hydroseeding as seasonal, but because of erosion control standards, if property owners and developers are willing to uncover the ground through the winter, they pretty much have got to be willing to sow it back and try to get some vegetation on it," he says. "Results typically aren't as good in the wintertime, but if you uncover so much ground, you are required to sow it back. It slows down some in the wintertime, but we've turned it into a year-round business."

High Country Hydroseeding has a Bowie Industries Hydro-Mulcher Victor 1100, two straw blowers, a tractor, and other equipment. The Hydro-Mulcher machine, with paddle agitation, is mounted on a Mack truck and features a 50-horsepower Caterpillar diesel engine, the option of a gear or centrifugal pump, a rotating swivel hose reel, four nozzles, and a capacity for up to 600 pounds of mulch per tank load.

Stewart's philosophy on tank size is that "if you are doing small residential jobs, it doesn't pay to have a big machine. But from a time and labor standpoint, the bigger machines for the infrastructure jobs that we're on is pretty much the only way to go." Stewart says his company can seed a third of an acre or a little less on one tank.

"If we've got a water source nearby, we may spray eight or 10 loads, whereas if you had a small machine, you're probably not going to get more than eight loads with it either, but the problem is you're just going to get half the coverage, depending on what size you've got," he says.

Stewart says he opted to go with a 1,100-gallon tank after having tried a 1,500-gallon tank. "The



Photo: Hydrograss Technologies

**Hydrograss Technologies operates two 1,200-gallon Kincaid machines with large flotation tires, advantageous to crews performing golf course work.**

problem with [1,500-gallon tanks] is they carried so much more weight and required a bigger truck, and sometimes the new roads that they've put in at some of these places are difficult to maneuver with such a big truck. So the 1,100-gallon seemed to be the optimum tank for us."

Stewart purchases all of his equipment. "I don't think anybody here does any leasing," he says. "You can purchase a machine and use it for two or three years and sell it for roughly half of the cost you paid for it, so it makes a lot of sense to buy."

"I think I'll probably end up with somewhere in the neighborhood of 1,000 tanks sprayed through the machine in two to three years, and I'll sell the machine for roughly half of what it cost me and roll it into another machine and just keep doing that."

He says he favors the Bowie because it was costly to repair the other type of hydroseeding machine he used to have, due to its hydraulic hose.

High County shoots from the top of the truck for its infrastructure jobs. "This particular unit has 150 feet of hose on the reel, which from time to time we'll use if we need to get around a structure or get to the end of the road and need to spray farther than the truck will go," says Stewart. "But the truck will actually pump through about 300 feet of hose without any trouble."

Stewart says he's often encountered steep slopes that can't be accessed with a truck, so "you end up throwing the hose reel on the truck, and sometimes we'll add 100 to 150 feet of hose in addition to that. The most difficult part is that when you pump the material into the hose, it becomes quite heavy."

In that situation, he'll maintain one employee on the truck and one on the nozzle; depending on how challenging it is, "we're liable to have four or five people in between the truck and the nozzle who are doing nothing but pulling hose and keeping it out of the way. Sometimes we get into some real steep slopes."

Stewart recalls that a few years ago, severe flooding in North Carolina resulted in mudslides and landslides. High Country had many slope reclamation jobs as a result. "They were pretty difficult, because you had to work from the top of the slide as well as from the bottom of the slide," he says, adding that some of the slopes were 1:1.5 or 2:1. "Some of them might have been 500 or 600 feet long, so you'd start at the top of the slide and save as much as you could from the top, and then you'd somehow have to get to the bottom and work your way up."

Stewart also does straw blowing in conjunction with hydroseeding. "We blow the straw in the heat of the summer to shelter the seed from the hot sun, particularly when there's a dry spell," he says. "Usually, it gets dry in August, so often after we hydroseed, we'll go back and straw over the top of it. It holds in moisture and keeps the sun from baking the seeds."

"We also do it in the wintertime to shelter the seed from frost and freeze. If the seed germinates in the wintertime right on top of the ground and then you get a hard freeze or a frost, you pretty much run the risk of losing all of it, whereas if you've got a thick blanket of straw on the top of it, it will keep a lot of the frost off it and you'll have much better results."

### **Maintaining a Range of Specialized Equipment**

Bob Arello, president of Hydrograss Technologies in Sarasota, FL, started his operation in the Sunshine State three years ago, nearly 10 years after the formation of his company in North Oxford, MA, the company's headquarters. The Sarasota operation was started to take advantage of the year-round hydroseeding opportunities.

"You get into year-round seeding here. The cool season grasses with the rye will perform through the winter months very well until around May, when you start to get those warm days and a lot of



Photo: Selby's Soil Erosion Control

**Selby's hydroseeding machines are mounted on trucks ranging from all-wheel-drive off-road vehicles to highway trucks.**

wilting, and then the warm season kicks in," he says.

Areello's company is focused on hydroseeding, with some work in stormwater management as well (the company provides Applied Polymer Systems' Floc Log, a semi-hydrated gel polyacrylamide block that helps remove fine particles within stormwater or construction-site drainages).

"We do get into some mechanical seeding, but overall we base it on spraying materials, mixing different products, doing testing," Areello says. Hydrograss has test plots on a 3-acre site where the company experiments with different warm-weather seed types. The company also has its own "Geo" product line of mulches.

Hydrograss clients are in both the private and public sectors, including roadwork and work for developers.

"We're doing a lot of berms and permanent grasses with our GeoPerm product," Areello says. "It holds up better than sod and it grows different species of grasses. We're not dealing with a monoculture—we're dealing with multiple blends. We've used wildflowers and a lot of different things like that. It's been a hard road for three years, but we are definitely starting to turn the corner a little bit right now."

Year-round, challenging work calls for top-notch equipment, so Hydrograss Technologies purchased the Apex A480 Extreme, the largest and most powerful hydromulcher in North America. It has the ability to mix and pump up to 2,200 pounds of wood fiber mulch per load. It has a 4,800-gallon capacity with a spray distance of 300 feet and a discharge rate of 900 gallons per minute from its stainless steel tanks.

Apex is constructing two more 4,000-gallon machines for Hydrograss, which also operates a fleet of three T-330 HydroSeeders by Finn, two 1,200-gallon Kincaid machines with large flotation tires for golf course work, and two 80-horsepower John Deere tractors with flotation tires to haul the machines on golf courses and sandy soils.

The Kincaid machines also feature a 36-horsepower Yanmar diesel engine, a Bowie 3500 positive-displacement gear pump with rubber-coated gears, and a hydraulic agitator, among other features.

Hydrograss has 12 employees in its Florida location, and Areello normally sends out two or three crews per machine.

The need for a specific tank size depends on how far a job must reach, but typically Areello's company needs larger tanks. He does a lot of work for subdivision construction, which calls for temporary erosion control over hundreds of acres, requiring larger machines.

"Most of the time, when we have areas we have to go into for different projects, that's when we put our 1,200-gallon hydroseeding machines on the tractors and tow them in," he says. The flotation tires on the machine don't make deep tracks in the soil because they are so wide, Areello adds.

"You can get into these residential areas," he says. "The biggest challenge is getting stuck, not disturbing. The only disturbance you don't want to do is on a golf course, but otherwise, not getting stuck is the key."

Arelo says the trucks he's having made will come with an air system that deflates the tires to spread the tire width for site access. "You'll hit a button in the cab and reduce the air about 50% so the tire width spreads right out," he says. "It's better than four-wheel drive."

Except for the standalone 1,200-gallon Kincaid hydroseeding machines, everything else is truck-mounted.

Arelo prefers paddle operations. "You don't want jet," he says. "It can't mix the heavy slurries, and you need to have heavy slurries to hold the soil down here in the sandy conditions and the rain. Our products go down anywhere between 2,000 and almost 4,500 pounds an acre of mulch," he says. Arelo puts 400 to 500 feet of hose on each truck, but normally uses 300 feet on the reels.

One of the most challenging jobs Arelo's company has done was a project in Naples, FL, where a lake had been dredged and its bottom vacuumed out. Arelo explains that in the 1970s, an herbicide program was enacted because of copious growth near the lake; herbicide was used to eradicate the trees along the edges.

"It all died, but it fell on the bottom of the lake and decomposed and killed all of the fish in the lake," he says. "They were cleaning it all out and pumping it into these 400-acre reservoirs, and we came around and stabilized all the berms."

Hydrograss used its 1,200-gallon tractor hydroseeding machine to negotiate the area. "We tried the big machines, but the ground was too soft," he added.

Another challenging project is slope stabilization at phosphate mines, where there are 300-foot slopes.

Because of Hydrograss' ability to meet challenges, the company is often summoned to do work by such agencies as the St. Johns Water Management District, where Arelo's employees sprayed 200 acres of reservoirs with the company's bonded fiber product.

"They use it in lieu of sod; they love it so much," Arelo says. "It holds better, and if it does wash out, they don't have to go down and pull all the sod out of the bottom of the hill—they just have to re-grade the slopes and re-spray it."

Arelo purchases all of his company's equipment. "You want to get the basic equipment with paddle agitation and centrifugal pumps," says Arelo. "We maintain our equipment so well it usually doesn't go bad on us. All of our tanks from Apex are stainless steel, so they're not going to break down. Some of the Finns, we repaint them on a regular basis. If you keep on top of the maintenance, you don't have to replace these things.

"We have MGM pumps that Apex puts on its equipment; they're extremely aggressive," Arelo says. "You can apply material at almost 300 feet. Even some of the Kincaid small pumps are vortex, but the key is to get the best possible equipment out there that will do the job without breakdowns, because that's your biggest problem. Even getting stuck—time is of the essence and it takes out of the profits."

Arelo believes that hydroseeding is getting a better reputation in the marketplace. "The hydroseeding industry was hurt in the 1980s by people applying a lot of paper mulches, which broke down quickly and didn't hold up," he says.

Stewart concurs that hydroseeding is becoming an increasingly important field going forward. "Ten years ago, a lot of people were still seeding by hand, and sometimes you can get some pretty good results like that, but when you seed by hand you don't do anything for erosion," he says. "The material we use is an all-wood mulch fiber with a tackifier in it, and we can come in on 1:1 slopes

basically straight up and down and vegetate them and pretty much do away with erosion situations.”

Stewart notes that in the past few years, there's been a push—particularly in the Southeast—to deal with erosion “because we're destroying our streams and filling our lakes full of sediment. Wildlife in our streams is suffering because we're building so many houses and opening up so much land for development. There's been a real push to put a stop to it and keep as much erosion from happening as possible.”

More people are realizing hydroseeding plays an important role in addressing that, Stewart says.

“Sometimes it's a little more expensive than hand seeding, but the results are 10 to one and erosion can pretty much be cut out altogether if you do it right,” he says.

*Carol Brzozowski is a journalist in Coral Springs, FL.*

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