They're Using Soybean Meal In Lawn Fertilizer

Amino acid-rich soybean meal may soon feed lawns, pigs, and poultry. AminOrganiX is exploring two new lawn fertilizer products: one made with 50 percent soybean meal and one with 25 percent soybean meal.

"No other naturally formulated fertilizer has anywhere near that quantity of soybean meal," says Mike Reiber, AminOrganiX. "You've got these amino acids in soy meal, which is why it's used as animal feed. Instead of just feeding animals, we're feeding plants because they benefit from those same amino acids."

Research has shown that amino acids stimulate growth and help plants grow deep roots. Reiber describes AminOrganiX fertilizers as nourishing the soil with amino acid forms of nitrogen, phosphorus, and potassium (N, P & K).

AminOrganiX produces and distributes hundreds of tons of granular organic fertilizers to more than 125 golf courses in southeastern states. Their fertilizers have also found a market for specialty crops, including peanuts, strawberries, corn, squash, and cucumbers. When the Minnesota Soybean Research and Promotion Council looked for a company to explore using soybean meal in fertilizer, AminOrganiX fit.

"We were able to take our existing organic fertilizer ingredients and replace them with higher soybean meal content," explains Reiber. "Our natural-based fertilizers contain no manures and are made to FDA feed-grade standards."

The AminOrganiX formulations include a 7-1-7 (N, P & K) garden and winterizer blend, a 16-0-8 lawn blend for lawns, and a 24-0-8 lawn blend containing urea. The ingredients include multiple nitrogen sources for controlled release, some fast-acting with others slower-acting.

"Homeowners across America and people administering publicly owned grounds are looking for alternatives to chemical fertilizers," explains Reiber. "Current natural and organic fertilizer alternatives are not fast acting. Our formulations produce much faster response in the soil because they feed the soil microbes."

Currently, high-soy-content fertilizers are being evaluated on lawns and turf grass plots. If results remain favorable, Reiber expects soy-based fertilizers to reach the market in 2025.

The Minnesota Soybean Research and Promotion Council, which funded this initiative through its checkoff program, is now working with partners that serve rural Minnesota to make the product available to consumers. According to Mike Youngerberg, senior director of product development and commercialization, the organization will continue to explore new non-traditional opportunities to increase soybean utilization.

"There's significant opportunity for soy-based fertilizer, particularly when we involve the agricultural community," Reiber says. "These are the people who want to support alternative uses for soybeans. It's a really good fit."

Contact: FARM SHOW Followup, AminOrganiX, 3800 American Boulevard West, Suite 1500, Bloomington, Minn. 55431 (ph 952-224-2939; info@aminorganix.com; www.aminorganix.com).

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Bike-powered fanning mill with blower.

They're Using Bikes To Clean Grain

Do you need to thresh, clean, and dehull a small plot of oats, emmer, einkorn, or dry beans? Free plans are available to build your own bicycle-powered thresher, fanning mill, and dehuller/flour mill. They also include instructions on how to build a pto for a bike to run the machines. A Sustainable Ag Research and Education (SARE) grant supported the Grain Bikes Project, which was completed in 2016. All plans are available from SARE and on the Farm Hacks website.

The plans at both sites provide detailed information and images. On the sites, Jan Yoder, project leader, offers extensive commentary about the machines, their development, and their use. The quotes below are selected from his various commentaries.

The Grain Bikes Project resulted from the need of several small farmers in Massachusetts to process bean and grain crops. One of them paid half the cost of prototyping. Yoder described the option for most as threshing out and sorting dry beans at about 3 lbs. per hr. and restoring antique fanning mills to clean small grains. Small-quantity dehullers for rice and other hulled grains were simply not available.

The project produced prototypes, videos, and detailed plans. The machines cost around $600 partly because they were repurposed from discarded bikes and exercycles. The bikes provided bearings, transmissions, and gears; wood was used for most other parts.

Initially, Yoder planned to move a bike from one tool to another. He quickly discovered that with free bikes, building the bike into each tool made more sense.

Another change came early with the dehuller/flour mill. Yoder started modifying a flour mill and ended up designing and building his own mill with dehulling pads made from silicone caulk. His design accommodates commercial steel or stone burrs for flour milling. He also provided instructions for making crude steel burrs with an angle grinder to grind flour.

"The dehuller is adjustable for different sizes of grains and how hard the grains are abraded during dehulling," says Yoder. "The original prototype pads were expensive rubber glued to the two substrate disks. First, we found one rubber disk rubbing against one abrasive disk worked better than two. Then we found that cheap, universally available silicone caulk makes a better rubber disk at one-tenth the cost."

The prototypes proved the machines' abilities and defined their limitations. The thresher processed 1/2 lb. to 1 lb. per min. of rice, wheat, and most beans.

With its two screens, blower, and shaker, the fanning mill exceeded 1 lb. per min. for all crops and 5 to 10 lbs. per min. for most grains. Yoder noted that some crops require multiple passes. He found that rice required a pass before dehulling and a second pass after.

"The big expense and difficulty with the fanning mill is obtaining the exact right size screens for each crop," says Yoder.

Throughout the design process, economy was a prominent driving force. Yoder went with flat drive belts instead of V-belts. Not only were they lower cost, but he provides instructions for making them by hand. Sheet metal is bent with pliers, not with a brake.

The plans are designed for simple modifications by the user. For larger throughput, bike power could be replaced by an electric motor.

The plans themselves don't use blueprints or 3D CAD files. Yoder describes them as design platforms to match a farm's needs and resources. In the case of the dehuller/flour mill, a pto and transmission with multiple gears are not needed if dehulling is the goal. However, a pto/transmission is recommended for flour milling.

In addition to the plans, Yoder and company also made videos of each machine in operation and an introductory video.

Contact: FARM SHOW Followup, SARE (https://projects.sare.org/project-reports/one16-277/) or FARM HACK (https://farm-hack.org/tools/bicycle-powered-thresher-fan-mill-and-dehuller).

Forever Fence Posts Made From Plastic

Thanks to a South Dakota manufacturing company, the next fence posts you install may never need to be replaced. Sustainable Products, Inc. makes posts out of recycled plastic with a UV stabilizer that won't rot in the ground or deteriorate in the sun. That's great for consumers and the environment because it makes something useful out of plastic (1,600 water bottles per 4-in. post, for example) instead of piling up in a landfill.

"Other companies recycle plastics and make products but often take only specific plastics. The difference with Sustainable Products is we take lightweight plastic films, plastic bags, and heavy-walled plastic from P1 to P7. We aren't turning anything way," says Billy Pollema, Vice President of Sustainable Products.

By taking all plastic, the company helps manufacturers and municipalities, who usually have to pay to remove scraps and waste. That was the reason Avery Zahn started Sustainable Products. Previously the owner of a pipelining business, Zahn worked on shredding, blending, and extruding plastics and other waste material and eventually perfected the formula that combines these recycled waste products into sustainable/useable products.

"Our goal is to consume as much raw wasted plastic material as possible and form it into end-user products. With this goal, we hope to reduce waste going into landfills and provide a quality product for the end consumer," Zahn posted on the business website.

Production on extruding fence posts started in late 2023. The 7-ft-6 in. square posts retail for about $25 and weigh 41 lbs. The 8-ft., 6-in. round and square posts weigh 98 lbs. and sell for $52.

With tapered or blunt ends, they can be installed like wooden posts by pounding or augering holes. They use the same staples or other fasteners as wood posts to secure wire.

"Their compression strength is three times that of a wood post, and they have 10 times the tensile strength of wood. They'll still flex and won't rot," Pollema says. Posts installed at a ranch in Florida for a year look as good as when they were new.

The company has also made 2 by 4s and 2 by 6s and hopes to add other products. They sell retail, but the goal is to wholesale to retailers.

Working with businesses and cities in South Dakota and adjacent states as far as 200 miles away, who save money transporting plastic to the Lennox, S.D., warehouse/plant, there's a steady supply stream, Pollema says. The manufacturing plant currently goes through 15,000 lbs. of plastic waste per day, and there are plans to add equipment to triple that.

Discounted prices are available for large orders. Customers can order from the company, and dealer inquiries are welcome.

Contact: FARM SHOW Followup, Sustainable Products, Inc., 47029 282nd St., Lennox, S.D. 57039 (ph 605-202-5192; info@sustainableproductsinc.com; www.sustainableproductsinc.com).

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