"Whether roasted or powdered, crickets and mealworms are a great source of protein and other nutrients," says Jarrod Goldin of Entomo Farms.

Goldin and brothers Darren and Ryan operate their insect farm out of a 60,000 sq. ft. facility – a retrofitted, previously abandoned chicken barn.

By Jim Ruen, Contributing Editor

Farming Insects For Food And Fertilizer

Entomo Farms' crickets and mealworms make tasty food, and their waste products make great fertilizer. The young company is expanding quickly to meet demand for their roasted and ground crickets and mealworms.

"We started our first insect farm in January 2014 with a 5,000-sq. ft. facility," says Jarrod Goldin, Entomo Farms. "By late 2016 we were at 60,000 sq. ft. and in the process of adding another 40,000 sq. ft."

Goldin's brothers Darren and Ryan are partners in Entomo. They had previously run a company that raised insects for reptile food. It was Darren who developed what they call cricket condos, dark warm places they can burrow into in between visits to feeding stations.

The 60,000-sq. ft. facility is a retrofitted, previously abandoned chicken barn. At any point in time, it can hold as many as 100 million crickets at various life stages from eggs to adults. When mature, there are about 33 million crickets in a 17,500 sq. ft. area or just under 2,000 per sq. ft. Mealworm numbers per square foot when mature has not been calculated.

"Getting the right density was the biggest challenge," says Goldin. "How many can we have in an area before they cannibalize or die off? We also had to get the food rations just right."

Entomo is completely, vertically integrated, from egg production to harvest, processing and marketing. Details of how they produce the mealworms and crickets are Entomo's intellectual property. Cricket eggs are hatched, and mature crickets are harvested at about 6 weeks of age. The crickets are frozen, washed and then either roasted or powdered. A similar process takes place with mealworms.

Even the cricket waste products – called "frass" – are finding a market. "Frass seems to cause plants to bud more for increased yield," says Goldin. "It could be the most useful organic fertilizer on the market. We are working with a university researcher to better understand it."

Cricket and mealworm powder or flour contains 70 percent protein, more calcium than milk, more iron than spinach, and 20 times more vitamin B12 than beef. At the same time, raising 10 grams of insect protein requires 1/12 the resources needed to produce 10 grams of beef.

Goldin suggests substituting insect flours for about 10 percent of all-purpose flours in baking recipes. It can also be added to soups, salad dressings, desserts, smoothies and other items.

"Insects, whether roasted or powdered, are a great source of protein and other nutrients," says Goldin. "You can add a teaspoon of powder to a favorite family recipe and make it more nutritious and tasty."

Entomo shares customer recipes as well as recipes developed by in-house chefs. Goldin says the insect powder adds an earthy/nutty flavor to foods. It is also a popular protein alternative to whey-based proteins.

One reason Entomo Farms is scaling up production is they are starting to sell product wholesale to larger food companies. At the same time, they continue to wholesale it to smaller companies and sell direct to a wide variety of consumers.

Goldin expects demand to continue building. Currently they have two farms and one processing facility with unmet demand in their area.

"We're looking to partner with people in different regions as demand expands. We welcome others who want to get into the market," says Goldin.

Goldin offers FARM SHOW readers a coupon for 20 percent off when ordering their powdered or roasted crickets and mealworms. Just mention FARM SHOW when ordering or use the code word "farmshow" when checking out online.

Whole roasted crickets start at $15 for 113 grams (4 oz.). Whole roasted mealworms start at $12 for 6 grams (2 oz.). Cricket powder starts at $11.25 and mealworm powder at $17.50 for 113 grams (4 oz.). The insects are also available in a variety of flavors and special packaging options, as well as in flavored pet foods.

There's a video of Entomo Farms at www.farmshow.com.

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Slow-Growing Sphagnum Moss Harvested Every 12 Years

David Epstein rotates his "crop" through marshes near Millston, Wis., harvesting sphagnum moss "fields" once every 12 years. It takes that long for a moss stalk to reach 10 to 12 in. The slow-growing moss isn't the only thing that doesn't change quickly. Harvesting it is relatively unchanged as well, with 1950's era Oliver OC6 tracked tractors doing the work.

"We have several of them and make parts as needed," says Epstein, a third generation moss farmer and marketer. "The OC6 has a very long axle, so the track is farther from the tractor body than other tracked tractors. We extend the pads by a foot and a half on each side with a white oak board. This spreads the already light weight of the tractor over a larger plane while not damaging the moss beds."

Spreading the weight out is vital as the tractors negotiate across bogs where the moss grows. "The ground we work on is soft," explains Epstein. "It's largely decomposed sphagnum moss."

To gather the moss, a tractor pulls a harvester with a stainless steel cylinder on its front. As the cylinder rotates, teeth emerge from holes in the cylinder. Clumps of moss stems are grabbed as the teeth retract with the continued rotation of the cylinder. The clumps of moss then fall onto a conveyer belt that carries them to a raft-like 7 by 12-ft. boat pulled alongside by a second OC6. When full, the moss is carried to a sandy area where it is spread to dry.

"The drying and packing process has been unchanged since my father, uncle and grandfather started in the business in the 1930's," says Epstein. Mosser Lee, the family owned company, is the nation's largest producer of sphagnum moss.

Once the moss has dried, it's packed in bales for marketing. More than 50,000 bales will leave the company this year with a value between $1 million to $2 million. The company also sells items made with the moss, such as lined hanging baskets and decorative moss. Mosser Lee moss is sold throughout the U.S. and Europe.

The market for sphagnum moss is one thing that has changed. When the company started, moss was used to pack bare root trees for shipping. Refrigeration eliminated that market, but new markets developed. One reason is the outstanding water holding capacity of sphagnum moss. One pound of moss can absorb and hold 20 times its weight in water. A 3.5-cubic ft. bale weighs only 10 1/2 to 12 lbs dry. Saturated, the same quantity of moss would weigh more than 350 lbs.

"Municipalities have found that hanging baskets made from moss fiber catch and absorb water like a sponge and then release it to the plant," says Epstein. "This means they don't have to water as often."

Landscapers and homeowners alike find that packing some saturated moss into the roots of a tree or shrub when planting helps keep it watered. The moss also makes a good medium for growing plants like orchids that like a moist environment, but don't like saturated soils.

Another appreciated feature is the low pH of sphagnum moss. Ranging between 3.5 and 4.5, it is so acidic that most bacteria can't live in it.

"This makes it useful for propagating orchids or starting seeds, especially those susceptible to 'damping off' diseases," says Epstein. "This is particularly important for expensive seeds like palm seed that can cost $12 for a single seed. A lot of consumers like our milled moss for starting garden plants indoors in the late winter."

Contact: FARM SHOW Followup, Mosser Lee Co., W6585 Highway O, Millston, Wis. 54643 (ph 715 284-2296; mosserlee@mosserlee.com; www.mosserlee.com).

David Epstein harvests sphagnum moss "fields" once every 12 years using 1950's era Oliver OC6 tracked tractors.

Once the moss has dried, it's packed into bales for marketing. The moss has outstanding water holding capacity and makes a good medium for growing plants.