



Down to Earth: Reports from the field

Innovative Small Farmers' Outreach Program (ISFOP): East Central Region

Food Safety on the Farm

by Marlin Bates, Horticulture Specialist, University of Missouri Extension

Growing safe food is vital to all producers. We like to think that we create safe products as a matter of course; however, fresh fruit and vegetable producers must take specific steps to reduce the risk of growing tainted food. It is easy to use safe practices to produce and handle food in the day-to-day business of most farms. First, make an on-farm food safety plan.

At this time, the law does not require producers to have their food safety plan certified. Still, some wholesale buyers now want food safety certification at the time of sale. The Food Safety Modernization Act will soon become law; then, those with more than \$500,000 in sales each year will likely need certification. A third-party auditor will have to verify the food safety plans of these growers. Even growers who do not need certification will find that a food safety plan is useful.

The United States Department of Agriculture (USDA) provides guidelines for any grower to develop a food safety plan. They do this through Good Agricultural Practices (GAP) and Good Handling Practices (GHP). Producers

can use the Audit Verification Checklist. It has a list of all concerns from pre-plant to post-harvest.



Spinach, pictured here, was recalled in 15 states in September due to listeria contamination. Photo courtesy of Marlin Bates.

Growers whose food safety plan will be audited should use the Audit Verification Checklist from the USDA website (<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5091326>). The checklist will help you prepare for the audit. It is also useful to review a food safety plan that has passed an audit before you prepare your own.

As can be seen from the checklist, most areas of concern relate to worker health and hygiene, water source and use, and manure/compost use. For instance, there is an emphasis on hand washing. In response, farms should have enough hand washing stations that all farm workers have easy access. These stations should have soap and single-use paper towels. For manure use, the USDA GAPs program has the same rule as the National Organic Standards Board. Manure should not be put on fields less than 90 days before harvest for crops whose edible portions do not touch the soil; the rule

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Food Safety on the Farm *(cont'd from page 1)*

is 120 days before harvest for crops whose edible portions touch the soil. There are other areas of concern, each with suggested steps to enhance food safety.

Certification is only one way of keeping the food supply safer. Even producers who do not plan to have their food certified should learn about how critical areas of their production system could increase the chance of microbial (for example, bacterial) contamination. In this way, they can take steps to reduce the risks.

There are a number of audits to choose from. If wholesale buyers request certification, they may state which audit is used. The USDA worked with many audit verification providers to make procedures simi-

lar. It has also created the Produce GAPs Harmonized Audit Food Safety Standard Audit, a newer form of the first GAPs Protocol.

For any audit, keeping good records is key. There are many resources to help organize the needed documentation; there are also ways to streamline the process of preparing for an audit. The National GAPs program can be found online at <http://www.gaps.cornell.edu/>. There, producers can see guides on food safety topics. They can also find self-assessment workbooks with best practices, training videos for farm employees and signs to post on farms.

Consumers are always mindful of food

safety concerns. Today, more produce buyers want a way to verify food safety. Now is the best time to prepare for this audit process.

As a rule, audits must be done while the crop is in the ground. That makes the winter months the best time to do much of the work leading up to the audit. If you would like to start a food safety plan on your farm, get help from an extension expert. You can also attend workshops that help you create an on-farm food safety plan.

To learn more about the USDA Good Agricultural/Handling Practices program, visit their website at: <http://www.ams.usda.gov>. 🌍

Are Meat Goats for You?

By Janet Hurst

As the number of small farms grows, it is worth considering new products. Look for open slots in the market and places where demand is unfulfilled. You can also find specialty markets, where there are opportunities to sell your product. One such option, suitable to any sized farm, is raising goats for meat.

Demand for goat meat is on the rise. This is due to a rise in the US population and changes in its cultural diversity. Goat is the preferred meat for many holiday and cultural feasts. Certain goat breeds are best suited for producing meat. Boers (rhymes with "cores") are probably the most well-known breed grown for meat. They originated in South Africa. These animals are easily recognized with a unique coloring; they have a nearly all-white body with a red, brown or black head. Boer goats have a good rate of weight gain and great carcass quality. The highest demand in the meat market is for the kid stock, weighing in at about 50-80 pounds. Most buyers and those that process the goats prefer an unaltered male with horns intact. But buyers have their own set of standards for what is desirable when buying an animal. For this reason, it is important to learn these standards before entering into production so that buyers will be satisfied.

There are many other meat goat breeds. Spanish meat goats were imported to the United States by early American settlers.

Tennessee meat goats are often called "fainting goats" because their muscles seize when they are startled. When this happens, the goats literally topple over until their muscles relax. The New Zealand Kiko goat is also known as a hardy meat animal. This breed is often smaller boned but usually has a higher muscle-to-bone ratio than Boers. Savanna goats are becoming more popular. They are similar in stature to Boers and have a larger body frame than the Kiko.

With all animals, especially with goats, fencing is a key concern. Make sure to have fence installed before bringing home the first animal. Goats are inquisitive animals, so fencing is essential. As with their dairy goat cousins, parasite management is also important in order to establish a healthy herd. Speak to your local veterinar-



ian, and ask for ways to manage parasites. Also, observe your animals daily to detect signs of illness or other problems before anything serious occurs.

Goats need proper nutrition. One myth of goat keeping is that these animals can survive without good quality feed. To gain weight and maintain overall good health, nutritious food must be available.

Before you begin goat production, talk to your local veterinarian or area goat specialist to learn how to maintain your animals. As with any new endeavor, time spent in planning will pay off. 🌍

Farmer Profile: McCann's Forest Farm

By David Price

Dick and Sharon McCann are not the norm when it comes to farmers. Their sixty-acre farm is nothing folks picture when they think of a Midwestern farm. There are no barns, bins, cattle, or crop fields that are common in rural Lincoln County, Mis-

souri. Instead, the McCanns make a living under the canopy of a hardwood forest. They cut firewood, operate a custom sawmill, and grow shiitake mushrooms.



Dick, Sharon and son James at market selling their mushrooms.

souri. Instead, the McCanns make a living under the canopy of a hardwood forest. They cut firewood, operate a custom sawmill, and grow shiitake mushrooms.

The firewood business and sawmill are successful; however, the shiitake mushrooms are the centerpiece of the McCann's business. According to Sharon, "The mushrooms generate the most excitement amongst our customers. Although there is a practical need for our other products, people can't eat firewood or milled lumber!" She adds, "Besides being good to eat, people are finding out that shiitake mushrooms are an excellent source of protein, vitamins and minerals. Shiitakes are known to be both low in fat and calories, while also being proven cholesterol reducers."

Since 2009, the McCanns have toyed with the idea of mushroom production. But it wasn't until the spring of 2010 that their idea took hold. An eight-week Grow Your Farm course in Warrenton, Missouri, helped them realize their dream. Along the way, they were aided by the Innovative Small Farmers' Outreach Program

(ISFOP). Their Farm Outreach Worker (FOW) introduced the McCanns to more experienced growers, who have willingly shared production and marketing tips. The McCanns were then able to map out a marketing plan involving the direct sale of fresh mushrooms and shiitake log kits. Of the 60 acres, only a half acre is used for mushroom production. The rest of the land grows the white oak logs that are cut and used as a growing medium, such as soil or compost, for the mushrooms. After the mushroom-growing logs are harvested, any other lumber is used for milling and/or firewood.

White oak logs that are four to six inches in diameter are cut into 40-inch lengths. Once they are cut, the McCanns insert a commercial spawn into each log. This is called "inoculating the log." Spawn is a prepared substance that contains mycelium (pronounced my-sa-lee-um), the plant part that produces mushrooms. It is inserted into pre-drilled holes which are one-half inch deep. Each 40-inch log has about 50 pre-drilled holes. After the spawn is placed into each hole (with a tool specially made for this purpose), the hole is capped with hot wax. The wax protects the spawn from foreign fungi and keeps moisture within the log.

Next, the logs are stacked to allow the mycelium to run up and down the length of each piece of wood. The McCanns have two methods for stacking the logs. Some

of the logs are stacked using a lean-to stacking design; others lie on top of one another in a criss-cross fashion. Each stack is covered with burlap to keep the inside of the logs moist. Just like soil in a garden, the logs need to be damp because the mycelium requires water to take up the nutrients it needs to produce fruit. This is why the McCanns have draped a complex "greenhouse style" watering system over the stacked logs.

Typically, it will take one year for mushrooms to surface on the inoculated logs. At that time, the logs are moved from the "staging stack" to a soaking tub. There they are submerged in a water bath for twenty-four hours. This process makes it more likely that each log will support quality mushroom growth. After the water bath, the logs are moved to the farm's fruiting rack, located in an 18-foot x 40-foot hoop house. The low-cost hoop house, which Dick constructed after attending a Lincoln University Cooperative Extension (LUCE) hoop house construction workshop, provides the ideal climate for fruiting mushrooms.

As soon as the mushrooms have opened, the McCanns twist the stems off each log. They bag the harvested mushrooms and refrigerate them. Each Saturday morning, Dick and Sharon sell these fresh woodland delicacies at the O'Fallon Farmers' and Artisans' Market in Lake St. Louis, Missouri.

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Fruiting logs within the McCann's high tunnel.

ISFOP

If you are a small farmer and need information, please contact an ISFOP Farm Outreach Worker (FOW). FOWs live and work in your community. They can provide information on ways to better manage your resources, reduce expense and increase income. They can also provide information on other programs and resources that may increase your income and the overall quality of life for you and for your family.

You are eligible to participate if:

- Your family lives on a farm, rural or urban.
- Farm products or income from the farm are necessary for you to live where you do.
- Your family provides the management and most of the labor for your farm.
- Your total annual family income is less than \$50,000.

**How to Contact
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**For general information
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Farmer Profile (cont'd from page 3)

Once the logs have no remaining fruit, they are restacked to await their next fruiting cycle. Later cycles take much less time--only eight weeks--when compared with the initial cycle. Each white oak log will produce one-half pound of shiitakes per cycle; each log can go through 18-20 fruiting cycles before it is completely spent.

The McCanns are a real success story, charting a unique path in Missouri agriculture. Their mushrooms are the most coveted offering at the farmers' market on Saturday mornings; they are often sold out of their seven-day production supply within a half hour of the market's opening. For this reason, they plan to expand their operation this winter. They will add another hoop house and double their total log count. Their FOW, David Price, says, "In all of my years of working with small farmers, I have never seen an operation advance from the 'idea stage' to profitability so quickly as what I have witnessed with McCann's Forest Farm. The business' success is a testament to Dick and Sharon's courage to try something different and their passionate determination to see it through." 🍄



Mushrooms are stored in a refrigerator until taken to market.

ISFOP would like to congratulate Farm Outreach Worker David Price on receiving the Natural Resource Conservation Service's (NRCS) Partnership Award! David received this award because he was instrumental in promoting NRCS programming to his farmer clients. His efforts resulted in five Environmental Quality Incentives Program (EQIP) applications within St. Charles and Lincoln counties. David's hard work and his successful collaboration with the local NRCS office is a great example of the ISFOP staff's commitment to Missouri farm families. Congratulations, David!