COLORADO
Small Acreage Management Newsletter

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Making Beeswax Candles

By Deborah Reed, small acreage owner

My husband, Allan, and I have had bees for about six years. At the end of the first year's honey collection, we realized we should also use the wax for something beneficial. It turns out there are a myriad of uses for beeswax. The music industry uses it extensively, for coating stringed instruments; the cosmetics industry uses it in lotions and balms; furniture makers often use it for joints, as well as in the care of their tools; and sewers use it to wax their threads to avoid raveling.

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Source http://www.theprairiehomestead.com/2015/02/how-to-make-beeswax-candles.html

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Making Beeswax Candles from page 1

Beeswax candles are a favorite use, as the end result is pleasant, refreshing, soothing, and even healthy! The Catholic Church has historically used beeswax candles in their services. Beeswax candles burn incredibly clean (very little smoke), and even release negative ions, which make them very pleasant to burn. They also release a wonderful, honey-like aroma into the air.

We first "process" our honey, which for us means simply skimming the honey and the wax from the frames into a wire basket frame that sits on top of a big plastic bin. The wax is caught by the wire frame, while the honey flows into the bin below, over a period of a day or two. We then make a big ball with the wax and set it aside until we get around to using it.

When we first decided to make candles from our wax, it seemed rather simple. Melt the wax, skim off the impurities (bee parts, wee bits from the frame that we might have accidentally scraped off into the honey, and other impurities), and pour it into the mold with a wick. But our first attempt was a bust. The next try, we studied a bit more and were more prepared

Here's how we do it now. We put the ball of wax in a pot of water and heat it all together. The wax will melt and look just like the water, but at that point, we turn it all off and let it set overnight. In the morning, the wax will have congealed at the top of the water, and all of the extraneous junk will be below it. We then have to loosen it from the sides of the pot, and often it will break into pieces. We scrape off any of the junk stuck to the bottom of the wax. Next, we make a cone shape with wire mesh, and line it with paper towels, then set that over a tin can and heat it for a while in the oven, at 150°F. The wax melts through the paper towel, into the can, filtering out any last bits of impurities in the wax.

Finally, we take the melted wax and pour into our forms, each has a wick tied to a toothpick or pencil to keep it above the mold. The square-braided cotton wicking is best for beeswax candles. You also need to get the wick size right. The bigger the diameter of the candle, the bigger the wick needs to be. If you use too small of a wick, you will end up with a melted puddle in the center of your candle, which continues down the center each time you use it. If the wick is sized correctly, it will melt across the width of the candle (given a proper amount of time to burn).

There are molds of various sizes and mediums. There are tin molds, glass molds, some use canning jars, and there are silicone rubber molds. We have only used the tin molds, but I am ready to try the silicone rubber molds, as they are widely considered ideal for candle-making. I will admit it is a bit troublesome to remove the candle from the tin molds. Invariably, you tend to get a crease where the seam of the mold was, and some scrapes as you pull the candle out. These can be smoothed out by heating a flat surfaced tool (such as a knife or spoon), rubbing it over the mark, and then quickly rubbing your finger behind the heat will add to the smoothing. Still, a slight indentation will exist, something to note, if you are terribly picky.

Molds not only come in different materials and sizes, they also come in various shapes and finishes. Personally, I prefer my candles simple and straight-sided. The simplicity of the beeswax candle, burning with a perfect flame and a sweet, buttery scent is really wonderful. It is certainly one of the joys of beekeeping. Give it a try! You can also buy beeswax in bulk, if you don't tend to bees, and that allows you to experience this hobby firsthand. Even if you only purchase a candle, you will certainly reap the wonderful benefits of true beeswax candles!

Backyard Chicken Harvesting

By Jennifer Cook, CSU Extension/NRCS

With the growing number of backyard chicken owners, questions about backyard harvesting (slaughtering and immediate post-harvest handling of the meat) have come up. To protect our health and safety, the federal Poultry Products Inspection Act (PPIA), administered by USDA's Food Safety and Inspection Service (FSIS) is the primary law governing poultry processing.

The PPIA requires that poultry, to be sold as human food, must be slaughtered and processed in a facility with "continuous" inspection, which means bird-by-bird. USDA has exemptions for processors but under Colorado Department of Agriculture (CDA) law, no one operating as an exempt processor may sell poultry. Poultry can only be sold if processed under USDA inspection.

One exemption to the PPIA is personal use exemption – slaughtering your own birds on your own farm for your own dinner table. BUT backyard slaughter may be prohibited by the city or county zoning and local health departments in which you live. So check with your city or county first.

If you plan on slaughtering a small number of your own birds, do your homework. Besides the local regulations that may or may not prohibit you from doing this in your backyard, there are health and safety considerations, as well as humane slaughter methods to follow. Humane methods of slaughter include reducing stress during culling and transportation, as well as proper killing procedures.

Raw chicken meat can be a host for *Salmonella* and other bacteria that can cause illness in humans. Bacteria spread quickly during meat processing so always follow recommended health and safety practices, including using clean tools and prompt chilling of meat. The steps of processing poultry are covered in the ATTRA publication entitled, Small-Scale Poultry Processing, available for free download at https://attra.ncat.org/attra-pub/summaries/summary.php?pub=235

If you don't want to slaughter your own meat, the Colorado Department of Agriculture (CDA) licenses Custom Exempt Meat processors to ensure humane animal handling and sanitation. Custom Exempt Meat processors can slaughter, process beef, poultry and wild game that is owned by the customer and will be consumed by the owner, the owner's family and non-paying guests. All of the meat processed by a Custom Exempt Meat processor must be stamped or labeled "NOT FOR SALE".

Community Supported Agriculture (CSA) farmers can participate in this program IF they sell the poultry, cattle, etc. to the CSA members AND the CSA farmer slaughters /processes and only distributes the animal(s) to the CSA members who have paid for the bird.

Mobile Slaughter/processing Units (MSUs) have been getting attention in recent years as a potentially expedient way to bring access to inspected processing to a community or region. Why are they popular? First, they are typically less expensive to build than stationary facilities. Second, by traveling from farm to farm, they allow on-farm slaughter, which many people consider the most humane

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Old laying hens have chewy meat but still can be harvested for use in casseroles and stock.

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approach because the animals don't have to be trucked anywhere. MSUs don't make sense for every situation. But they are a useful option in certain circumstances. There are not currently poultry MSUs in Colorado. If you want to learn more about building or buying a mobile poultry slaughtering / processing unit go to www.extension.org/pages/19234/mobile-slaughterprocessing-units#.UynA8JVOXDc

Anyone involved in custom processing, processing meat for other people and/or selling your meat, must be licensed by Colorado Department of Agriculture (CDA) and meet all construction and operation requirements. Licensed facilities must meet state sanitation requirements. If interested in selling poultry, you must speak with the Colorado Department of Public Health and Environment to attain approval. However, approval will only be granted to USDA inspected operations. Otherwise, contact CDA for licensing of custom slaughter facilities. If you are interested in selling your meat retail, contact your local public health agency.

Certain breeds contain the right feathers for fly fisherman to tie flies with.

More Information on Poultry Processing:

Poultry Processing videos and resources https://attra.ncat.org/attra-pub/poultry/processing.html

National Chicken Council Animal Welfare Guidelines http://www.nationalchickencouncil.org/industry-issues/animal-welfare-for-broiler-chickens/

Poultry Processing Regulations and Exemptions summary by Extension www.extension.org/pages/33350/poultry-processing-regulations-and-exemptions

Poultry Farm to Market information http://cofarmtomarket.com/value-added-products/poultry/

Backyard Poultry Resources

from www.ext.colostate.edu/sam/animals.html

- Backyard Chickens overview article
- Home-Produced Chicken Eggs fact sheet
- Colorado USDA Certified Poultry Slaughter & Processing Facilities
- Blueprints for Poultry Equipment and Housing Plans
- Raising Ducks
- Raising Geese

Is This The Year of The Voles?

By Irene Shonle, Gilpin County Extension

Last year was a bad year for voles, but this year seems to be off the charts! I have gotten many calls, and all of my colleagues are mentioning the same thing. Now that the snow is melting off the lawns, people are looking in horror at the trails all over their lawns, and perhaps also looking at dead junipers or other shrubs from the voles girdling action.

The high vole numbers may be due to the moisture we've gotten the past two years. It's caused a lot of grasses and forbs to grow luxuriantly, and this has led to lots of fat and happy voles that have of successful litters… which leads to …. more voles!
If you're not sure whether you have voles or not, you may like to see this new fact sheet that helps identify what animal caused the damage you see in your lawn: http://extension.colostate.edu/topic-areas/natural-resources/burrowing-animals-determining-species-by-burrows-damage-6-521/

The good news here is that voles have pretty predictable boom and bust cycles. Population explosions (right now) are followed by intense predation and other stressors that bring the levels back down. So, even if you do nothing, you will probably find fewer voles in the future. And it may bring a little comfort to realize how ecologically important the voles are – coyotes, fox, bobcats and hawks all depend on them. In other words, we would never wish them to go away altogether. And for that matter, they never WILL go away altogether. If you have voles now, you probably will get voles again.
However, I think most of us would like them out of our gardens and lawns, especially when a few too many have moved in.

Voles trails become apparent in the melting snow.

To repair damage to lawns from runway construction, rake, fertilize and water the affected area. The lawn should recover when the grass begins to grow. Extensive areas may need reseeding.

For the most part, trapping is the fastest way to handle voles, and has the least potential to cause secondary environmental damage. It can seem daunting, but it is pretty easy to trap down the population that has settled in your yard in just a couple of days. Poisons can be used, but there is the possibility of secondary poisoning of all the critters that could then eat the poisoned vole (including your dog or cat). For more information on how to trap or use toxicants, please see: http://extension.colostate.edu/topic-areas/natural-resources/managing-voles-in-colorado-6-507/

Some preventive action in the fall can also be helpful – mow your lawn closely to reduce the tall grass that provides a safe haven for voles. Since they are food for so many species, voles are rightly cautious in exposing themselves unnecessarily. If you live near an open space area, see if there is a way to mow a swath of the native grasses along the fence line to keep them from crossing over into adjacent lawns.

Another idea – and this is not research based (yet anyway), but it does make a lot of sense to me, is to shovel your lawn in the areas where you usually see a lot of vole activity and damage in the spring. Voles can move in to even a short lawn under the cover of the snow. The snow keeps them just as safe as long grass does from predators. If you remove the snow, it might just blow their cover. If you try this, please report back!

Irrigation Options: Gated Pipe

By John Miller, Delta Conservation District

More people throughout Colorado are switching to more efficient irrigation systems to make every drop of their water count. Distributing irrigation water as uniformly as possible is one step to raising a better crop. Many farmers and ranchers are achieving a uniformity upgrade by switching from old fashioned dirt ditches to gated pipe. Gated pipe is a good method of applying water at a specific rate of flow since gates are easily adjusted to regulate the amount of water entering each furrow.

Delta County rancher, Tom Stevens was having trouble irrigating on his ranch near Crawford. He made the switch to gated pipe at the beginning of the 2013 irrigation season. When asked about his new system, Tom says, "Going out with a shovel to set tarp is hard work, Opening gates with a stick is a lot easier." Tom has 120 acres of hay and pasture ground close to Needle Rock. With the same amount of water, gated pipe has allowed his irrigation to make it to the end of the field at a faster rate. Tom has also cut down dramatically on the number of hard-to-irrigate and therefore often too dry areas in his fields. With gated pipe, "it's more evenly distributed and you can get the water where you need it on the field. It's precise," he says.

When Tom first bought his ranch and started irrigating with the existing dirt ditches, he was only producing 10 large round bales per season (around 15,000 lbs of hay). His first year with gated pipe, he produced around 1,800 small bales on the same ground with the same water (around 118,800 lbs of

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hay). While some of this increase in yield can be attributed to changes in management style, part of the credit goes to more uniform water distribution.

As well as adding gated pipe on his farm, Tom also piped his delivery ditches during the same project, "We were losing a lot of our water before it ever got to the ranch," and during dryer times his water wouldn't even make it to the ranch at all. Piping his delivery ditches also eliminated the erosion and sedimentation problems he was experiencing. Some of the longtime residents of his neighborhood have remarked that the property is the best it has ever looked.

Bob Clark is a hobby farmer in the Cedaredge area. He has also recently upgraded his irrigation to a gated pipe system. He has 28 acres of grass and alfalfa hay ground, and with his call water scenario he only gets water for five days at a time. With dirt ditches he could only run twenty furrows for every 12 hour set, and on some rows the water never made it to the end of the field. With his new gated pipe system, he is now able to set 30 rows at a time and the water is making it through to the end of the field for a more even coverage. As a result, Bob's hay growth is more uniform and the swather will now go through the hay easily without plugging and stalling as much. In Bob's system, as is common practice, a trash screen was installed along with the gated pipe. With the old ditches, Bob had floating debris constantly building up, but with his new screen he now has a lot less floating trash to deal with. Bob's only complaint about gated pipe is that he possibly spends more time picking it up and maintaining it than was required with his old ditches. But at the end of the day he says, "It's better control of my water by far."

If you are interested in upgrading your current irrigation to a more efficient system, then gated pipe may be a low tech and lower cost solution for you. However, even though gated pipe systems allow for better water control, they are still on the lower end of the efficiency scale when compared to other systems. With the average gated pipe system, there is a 50% loss of water in the field due to over saturation at the top end of the field rows.

Your local NRCS (Natural Resource Conservation Service) can provide you with resources and assistance to upgrade your irrigation system. Some system upgrades may qualify for financial assistance.

The Facts About Compost Tea

Jennifer Cook, CSU Extension/NRCS

Compost tea is made by soaking compost in water over a period of time, to dislodge microbes and water soluble nutrients. The result is a liquid compost tea generally used as a fertilizer and a fungicide, by applying a dilution to the soil or as a foliar feeding (spraying). Research is showing that compost tea can benefit plant health and nutrition, but until more research is done, there are no specific recommendations on the use of compost tea.

Compost tea is low in nutrient/micronutrient concentrations. Low amounts of nitrogen, carbon, phosphorus, sulfur, potassium, and micronutrients, depending on the additives used, are available in compost teas. Some teas stimulate plant defense systems, and some contain plant hormones.

Compost tea is made either in aerated or stagnant conditions. Aeration amount and water temperature can change the final product because microbial communities grow and change under different conditions. Additives such as kelp extract (be aware of high salts), dried herbs, humic acid, and rock dust are often added to teas, and, again, can change the final product. Be aware that molasses and sugar can boost *E. coli* growth in compost tea. And consider that when using compost tea on food crops, if you do not know the fecal bacteria amounts in your compost, use the

USDA Organic Program recommendations for manure fertilizing: apply to soil at least 90 days before harvest; apply to plants 120 days before harvest.

Because the ingredients within a compost, and the methods of making compost tea are so variable, the final product will not always be consistent. Compost, aeration, temperature, and additives can all change the final compost tea. So if I used the same compost to make tea, but under different temperatures or using different additives, the final product would be different. This makes it very hard to create blanket recommendations about compost tea and its uses.

According to Washington State University compost tea research, there are mixed results from research studies looking at using compost tea for disease suppression, enhanced plant growth, and increasing plant yields, probably due to the fact that it is hard to make a consistent compost tea product. While there has been some research using compost teas, there is poor understanding of the mechanisms and responses to compost tea on plants.
Compost tea is considered an experimental pesticide, as it has shown in some studies, but not all, to suppress diseases such as powdery mildew. So it is illegal to sell compost tea as a pesticide, but it can be sold as a nutritional supplement to promote plant health.

Here are strategies to control the quality of a compost tea brew:

- The PH, EC (electrical conductivity), and temperature of water can be used to track consistency and quality. Use a hydrometer for EC.
- Use high quality compost and include vermiculture - worms will reduce the pathogen load in regular compost.
- Use consistent mixing conditions (water source, quality and temperature, soak time, etc)
- Sanitize all equipment
- Compost teas can be tested for fecal bacteria and if EPA standards are met, it can be applied to food crops without restriction.

For more information on compost tea research, visit WSU http://www.whatcom.wsu.edu/ag/compost/composttea.htm

Understanding and Using “cides”

By Sharon Bokan, Boulder County Extension

Since the beginning of civilization, humans have been trying to improve their living environment using pesticides to kill insects, animals, or diseases that impact their life or ability to grow food. Ancient Egyptians mention using hemlock and aconite while Homer mentioned using sulfur on plants and the Romans used burning sulfur to control some insects. Humans have even used salt to keep rival nations from being able to raise crops.

The suffix of “cide” means “someone or something that kills a particular person or thing or the act of killing.” What precedes the “cide” is the main target of the killing act. Pesticide is a general term that includes all “cides” that affect all pests. Contained under the pesticide umbrella are the following “cides” and their main target:
Herbicide – plants
Insecticide – insects
Fungicide – fungi
Bactericide (aka antibiotic, like those prescribed by a physician) – bacteria
Miticide – mites
Rodenticide – rodents
Avicide – birds
Nematicide – nematodes
Piscicide – fish
Predacides – vertebrates
Slimicide – slime molds

A biocide is a pesticide that affects both plants and animals. Pesticides only affect their target unless they are improperly used.

Can an insecticide harm a plant? The answer is yes if it is improperly used. If it is mixed stronger than the label recommends or applied when the temperature is too high, the wind is blowing, or the plant is sensitive, then it can harm the plant.
Will an herbicide harm insects? Again, the answer is

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Reading Pesticides Labels

Pesticides can serve a useful purpose around the home and garden by reducing some of the problems we face from pests. Pesticides include insect killers (insecticides), weed killers (herbicides), and fungus killers (fungicides). If not used according to label specs humans, pets and water supplies can be harmed.

Sounds simple, but to head off problems with pesticide use, the most valuable time spent in pest control is the time you take to read the label. Before you buy a pesticide, read the label to determine:

- Whether it is the right pesticide for the job
- Whether the pesticide can be used safely under your application conditions
- Whether there are any restrictions on the pesticide
- How much pesticide you should buy for the area you are treating when to apply the pesticide.

Pesticide labels are the legal document located on the pesticide container that provides information concerning the safe and effective use of the pesticide. **The label is the law.** This is a huge deal!

The user of any pesticide is liable for all aspects of handling the product, including but not limited to personal protective equipment required for use, mixing, loading, application, spill control, and disposal of a pesticide or its container.

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yes if improperly used. Insecticide labels are now including information on using the insecticide in such a manner so as to not harm honey bees. Be sure to read and understand label instructions prior to purchasing any “cide” to make sure it will manage the target species while not harming other species.

This warning does not apply only to “synthetic” “cides” but also to “organic” “cides”, they are both designed to kill something. The first pesticides used were “organic”. **Many “organic” herbicides can be just as harmful or more harmful if used improperly.** So be just as careful with an “organic cide” as with a “synthetic cide.” A note of clarification about pesticides, unless you are using an element such as sulfur, most pesticides are based on organic chemistry not inorganic chemistry. Most “synthetic” pesticides are based on “organic” compounds but are produced synthetically.

For “synthetic” “cides,” years of research and millions of dollars are invested in a product prior to its release. There are a series of required tests that must be completed prior to the product being released. These tests are required to determine the application rates, mixing instructions, protective equipment required, potential harm to off-target species and many other pieces of label and Material Safety Data Sheets (MSDS) information. So always take time to read and follow the label.

So how do you find out about a product before you purchase it? Most companies are now posting the product labels and the MSDS on their websites. There is also a great website that has both posted on it http://www.cdms.net/Label-Database .

The first step in using any “cide” is to positively identify what the problem is, whether insect, mammal, plant or bacteria. Using the wrong product on the problem may lead to other more serious problems. Your local Extension Office can help you identify plants and plant diseases.

Extension uses **Integrated Pest Management (IPM)** in our recommendations to the public. Integrated pest management uses multiple techniques to manage a pest. The techniques are Prevention, Cultural, Mechanical, Biological and Chemical. **Prevention** is purchasing quality pasture seed or hay from a reputable dealer that contains minimal weed seed. **Cultural** is keeping desired plants healthy so that they can prevent weeds from getting a foothold. **Mechanical** is hoeing, hand pulling, dead heading, plowing, burning, etc. **Biological** is the use of another biological agent such as livestock, insects or bacteria for management help. **Chemical** is the use of a chemical or element, whether naturally occurring or synthetically manufactured, to manage a pest.

Reference: The Standard Pesticide Users Guide 7th edition, Bert L. Bohmont, 2007, Prentice Hall

Colorado Small Acreage Services Database

The source for landowners to find contractors, equipment, and services

http://sam.ext.colostate.edu

Need help with weed control?
Have a small pasture seeding project?
Search the site today to find a local contractor!

This is a free service brought to you by USDA-NRCS, CSU Extension, and your local conservation district

For a list of upcoming events in your area visit CSU Extension Small Acreage Management website
www.ext.colostate.edu/sam/

Do you have a question about managing your small acreage?

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