I see light at the end of this freezing, winter, tunnel we’ve been in, readers. The 20th of this month marks the first day of spring! Longer hours of daylight, warming temperatures, birds singing, and our landscapes greening are all things to look forward to. I don’t know anyone who’s not ready, do you? ........Jolene

Snowflakes

By Jolene Wallace

We have all heard that there are no two snowflakes alike. Have you ever wondered how anyone knows that? Has someone been looking continuously at each and every snowflake? Is there a crystal ball involved? It’s actually much simpler than that and makes perfect sense when you think about it. Each snowflake is made up of 10 quintillion (a quintillion is 1 followed by 18 zeros) water molecules, so while you can find snowflakes that look alike, on a chemical level they are not identical.

Snowflakes are formed when a cloud’s temperature is 32° F or less, there is adequate moisture in the air, and microscopic specks of dust, bacteria, pollen, or other solid matter for ice crystals to form around. There are seven basic patterns of ice crystals that make up snowflakes, each with a corresponding temperature at which it is likely to form.

- The most common crystals are the irregular, which are usually small clumps of ice.
- Also common is the star, which forms at temperatures around 5° Fahrenheit. Star crystals are delicate but if the conditions are right, several may join together to form larger snowflakes.
- When the air is dry, and the temperature ranges from 14°F to -13°F in the atmosphere, column shaped crystals form.
- The next crystal shape is the dendrite, which forms at 4°F to 13°F. Dendrites are lacy-looking, three dimensional star crystals which begin as columns but collect moisture that freezes into ‘branches’ as they fall to earth.
- Similar to the star crystal, but without the delicate structure, is the plate, which forms at temperatures of 14°F to -4°F when atmospheric water vapor is too low to form the arms that the star crystal has.
- If a snowflake passes through several different temperature and moisture zones on its way to the ground, columns capped with plates may form. The columns form at higher, dryer levels of clouds and are combined with star crystals at lower, wetter, cloud elevations.
- When ground temperatures are at or near freezing, needles form. This formation results in a stiff snowfall and is more often the type of snow that can result in an avalanche.

Continued on page 6.
Gardeners March Madness
Saturday, March 22
9:00am to 2:30pm
At the Plattsburgh Elks Lodge

Cornell Cooperative Extension Master Gardeners present a:
Do-It-Yourself Garden Design Workshop

Topics to be covered include:

- Elements of design
- Plant choices for your location
- Using focal points to enhance your garden
- Dividing perennials
- Edible flowers
- Vegetables in the flower bed
- Containers that “pop”. You will make one!

Your registration fee of $20 includes coffee, water, snacks and all of your supplies. Please bring a sack lunch.
Call 561-7450 to register, or contact Jolene at jmw442@cornell.edu

Cornell Cooperative Extension provides equal program and employment opportunities.
Amy’s Tips for March

By Amy Ivy

I love winter, but even I have found the past 2 months to be more challenging than usual. So it was with great delight that I noticed some of the very earliest signs of spring last week, and these should continue to increase throughout March. Here are some signs to be on the lookout for, and some activities to keep housebound gardeners busy this month.

- Small groups of male bluebirds have been travelling about. They begin scoping out nesting boxes extra early so be sure to get your boxes cleaned out and securely installed now, even if there’s still a foot of snow on the ground. The females will come later in the spring and see what the males have found. For more information about our state bird, visit Cornell’s Lab of Ornithology’s terrific website: http://www.allaboutbirds.org/guide/eastern_bluebird/id where you’ll find photos, recordings, and lots of information.

- It’s time to force some branches. Forsythia and apples are the two most common but I also like to force willow, birch and tamaracks, too. Some varieties of Forsythia, especially the older ones, have flower buds that are sensitive to winter cold, but the leaf buds are plenty tough. So if your forsythia branches produce only leaves and no flowers this year, chances are good those super cold nights in January zapped the flower buds. You can cut extra-long branches of birch and willow if you have the room, and they’ll leave out to give you some fresh indoor greenery while you wait for spring to arrive outdoors.

- Gnats or fruit flies? Every winter we get a lot of calls from people with houseplants invaded by what they think are fruit flies. But these are actually fungus gnats – annoying but not harmful. Their larvae live in the potting soil of houseplants and the adults emerge and fly around, looking for pots of soil. This is a common complaint at offices, too, and all it takes is one infested plant to get a lot of people riled up. You can call our office for our factsheet with all the details on this nuisance. But briefly, their presence is a sign that a plant is being kept too wet. That’s not good for the plant so in a way it’s a good thing they’re giving you

Continued on page 6...
When it’s cold outside we are more inclined to want a warm, tasty treat instead of those ice cold favorites we may enjoy more in the summer. This experiment however will show you that you can embrace the cold weather by using it to create a tasty favorite, ice cream!

Materials:

- 1 cup of heavy cream (you may also use whole milk or half and half but the heavier the cream the better)
- ½ teaspoon of vanilla extract
- 2 tablespoons of sugar
- 4 cups of ice
- ½ cup of rock salt (found in the sugar/flour aisle of stores. It may also be labeled as “ice cream salt” which works the best
- 1 quart size zip-lock plastic bag
- 1 gallon size zip-lock freezer bag
- Bowl, plastic is fine
- Spoon
- Measuring cup
- Measuring spoons
- Additional add-ins are optional (I personally love chocolate syrup and sprinkles)

Instructions:

1. Add 1C heavy cream, ½ teaspoon of vanilla extract and 2 tablespoons of sugar to the quart sized zip lock bag. Make sure there is little air in this bag and zip or seal well. *If the bag is open just a little bit the ingredients will leak out and the rock salt will seep into the ice cream and it will taste awful.
2. Place the 4 cups of ice and ½ cup of rock salt into the gallon zip lock bag. *You can also add snow to this mixture to increase the coldness.
3. Place the quart sized bag with the ice cream ingredients into the gallon sized bag containing the rock salt and ice and seal tightly! The salt will begin to melt the ice because salt lowers the freezing point of water
4. Begin to shake the bag so that the ice and salt is distributed equally (covering the smaller bag as well as you can) *Spinning the bag in your hands works very well, the energy from the shaking of the bag – and the heat transferred from your hands- causes the ice to melt further.
5. Continue to shake the bags until the cream begins to harden – once your ice cream has reached your desired hardness you should remove the small bag and rinse it under cold water to remove the salt-water solution *Rinsing the top of the bag where it either zips or press-seals closed is a good idea to avoid any leftover salt-water solution that may be hiding in those areas.
6. Dump ice cream in bowl and top with additional add-ons and enjoy!
Chemistry continued...

Discussion Questions:

- What is the freezing point of water?
- What do you think the temperature of the salt-water solution is? (you can measure this with a thermometer if available)

Additional Information:

- Since the ice is mixed with the salt the salt-water solution has a lower freezing point than plain water. This means that the melted ice is actually colder than the original ice!
- Salt actually lowers the freezing point of water and helps melt ice –this is why people use salt on the roads and sidewalks that are covered in ice during the winter.
- Salt water is harder to freeze than plain water. Think about a pond and an ocean, which freezes first?
- Not all types of salt work the same. The larger the salt crystals, the more time it takes to dissolve. This keeps it colder longer. You can experiment with kosher or table salt to test this.

Check out our upcoming events on Page 11!
this message. Remove the affected plant from its pot, gently knock off as much of the old mix as you can, scrub the pot, then repot it with fresh potting mix. Reform your watering habits so the plant gets the water it needs without staying constantly soggy.

- Another sign of spring is a gentle whiff of skunk in the air as you step out onto your porch in the morning. Skunks, raccoons and woodchucks like to den under porches and sheds and now is the time to block their access. They mate in late winter and will have their first litter in early spring. Once the young are born it’s a lot harder to keep them out. They are all good diggers and chewers so you’ll need to use heavy hardware cloth, not just chicken wire, to fence off access to those cozy areas. Leave extra wire at the bottom so you can bury the lower edge once the ground thaws. Good diggers can easily tunnel underneath barriers than only reach the ground.

- Maple Weekends are coming! Check local listings for events and pancake breakfasts during our two Maple Weekends at the end of March. Many maple producers offer pancake breakfasts, some have wagon rides and all kinds of fun events for your family. Support your local producers and bring the family!

- If you’ve ever wanted to try making your own maple syrup or tap a tree or two in your own yard, check out this new book by our state Maple Specialist, Michael Farrell, based right here in Lake Placid at Cornell’s Uihlein Maple Research Station: *The Sugarmaker’s Companion, an Integrated Approach to Producing Syrup from Maple, Birch and Walnut Trees*. Each Extension office has a copy if you’d like to preview it, and I’m sure there must be copies for sale at the research station in Lake Placid, 518-523-9337.

**Snowflakes, continued...**

The next time we get a good snowfall, take a piece of black construction paper or cardboard outside and catch a few flakes. If you have given the paper time to get cold the flakes won’t melt immediately. Use your hand lends to examine the snowflake and see how many crystal formations you can detect. Can you find them all before winter is over?

For more information about snowflakes, and to see some stunning photos, go to [www.SnowCrystals.com](http://www.SnowCrystals.com)
Poultry Class Offered

When: Tuesday, April 1st at 7:00 pm

Where: CCE Office, 6064 Route 22b, Suite 5
Plattsburgh, NY

Cornell Cooperative Extension Clinton County is hosting a workshop for anyone interested in raising chickens for pleasure or profit, eggs or meat, 1-1000. We will cover the basics of chicken husbandry, housing, nutrition, and related topics. The workshop has a $5.00 registration fee.

Please pre-register by calling 561-7450 or email phh7@cornell.edu

Many thanks to our business sponsors:

- Campbell’s Greenhouse
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- Duprey’s Feed & Supplies
- Flowering Meadow Nursery
- Garrant’s Vegetables
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- Northern Orchards
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North Country Gardening
What Makes Maple Sap Run?

By Paul Hetzler, Cornell Cooperative Extension of St. Lawrence County

It's just a matter of time before maple sap begins to run, heralding the start of the 2014 maple sugar season. We know the weather conditions that lead to sap flow, but until just a few years ago, science was at a loss to explain what made maple sap run. (I always like it when people a lot smarter and better-paid than I am don't know the answer, either.) Because of recent advancements, however, the mechanism behind sap flow is now mostly understood. Probably.

Throughout sugar maple's range, maple production has been economically important ever since Native Americans first taught European settlers how to gather maple sap to make sugar. Back then it involved placing red-hot stones into sap to boil it down. Fortunately, technology has improved. Today's maple producers have their reverse-osmosis units and vacuum pumps ready to go, anticipating the first sap run. The forecast will tell us when that will likely be, but how does it happen?

Aside from maple, very few tree species have a spring sap run. Birch and butternut are exceptions, but their roots generate pressure that forces sap upward, which is not the case in maples. It turns out maple sap flow is due to the way its wood interacts with freeze-thaw cycles. In biology we learn that wood, or xylem, is responsible for upward transport of water, while sugars move down through the phloem, the outermost layer of cells. Actually, xylem "misbehaves" during the spring sap run, ferrying sugars up before nonchalantly returning to the textbook model as if nothing happened.

Xylem is composed of several types of cells, including vessels to transport liquid, and fiber cells to provide strength. Unlike most trees, maples have gas-filled fiber cells. Carbon dioxide and other gases in those fibers are critical to generating flow because they dissolve in sap. The geyser that results when we open a seltzer bottle (especially a warm one) too fast is a reminder that plenty of carbon dioxide can dissolve in water. If that bottle is icy cold, the risk of a gusher is low because cold water holds more dissolved gas.

During the night, gases in fibers shrink as they cool, eventually dissolving into sap contained in the vessels. This contraction of gases causes the tree's internal pressure to drop, creating a suction that draws sap up from the roots. As the temperature warms in the morning, gases bubble out of solution and expand, increasing the tree's internal pressure and forcing sap out the tap hole at about 15 pounds per square inch (psi) on average, occasionally up to 40 psi.

Rather than flowing up from the roots and out the tap during the day as was once commonly thought, sap actually flows down from the crown in addition to flowing laterally toward the tap hole. When a warm day follows a sub-freezing night, sap may run for a few hours or up to several days, depending on the tree and on factors like barometric pressure change. If temperatures remain warm at night or below freezing during the day, sap will stop running.

All native maples yield sweet sap. Even the much-maligned boxelder belongs to the genus Acer and can be tapped. Unfortunately, the imported Norway maple, including its red-leaf cultivars, gives a bitter, milky sap.

Continued on page 10...
By Jordy Kivett, Nutrition Educator

As the last of winter lingers, you may find that some of that 50 lb. bag of potatoes you bought are doing the same. Root vegetables are some of my favorites and are filling and comfort food, perfect for a cold damp day. Do not limit yourself to plain potatoes though; many delicious things grow beneath the ground.

Sweet Potatoes
To mix up your regular potato sides, try sweet potatoes. Sweet potato fries (while less healthy) are a delicious introduction, if you have never eaten a sweet potato. But sweet potatoes are inexpensive and easy to cook, so try them baked whole, or chopped and roasted with a little oil for an easy side or boil a few peeled sweet potatoes alongside white potatoes to make colorful, mild tasting mashed potatoes.

Beets
Beets are gorgeous. Even golden beets and striped beets have very vibrant colors. Try raw beets grated and tossed with vinaigrette for an easy, crunchy salad. You can leave the skin on while cooking beets and it slips off easily when they are cooked. However, I usually end up peeling them ahead of time and sporting red fingertips for a day or two. I have heard lemon juice will help remove the stains.

Parsnips
Carrots pale cousin has a surprisingly sweet and fresh taste. The flavor is great roasted or added to soups.

Due to their sweetness, I have also seen them in baked goods, so try substituting them in your next carrot cake or adding them to muffins for a different flavor.

Turnips
My daughter recently chose a few turnips as her produce choice, surely due to their purple tops. I was excited, as I love their nutty, starchy flavor. Mashed turnips are a classic way to prepare turnips, but they also are great in a soup or roasted.

Whichever roots you choose, you cannot go wrong nutritionally. Even the common potato, which has a bad nutritional rap, is actually good for you (it is a vegetable after all!). The reason potatoes have a negative image is that they are a starchy vegetable and they are the source of the French fry, but do not condemn them for these reasons. All root vegetables have fiber, and varying amounts of vitamins and minerals. A medium potato, baked has just over 100 calories, 3 grams of fiber and is a good source of vitamins C and B12. The starchy vegetables have more calories than non-starchy vegetables, so pair potatoes with non-starchy vegetables for your meal. And as for French fries, frying is obviously not a good choice, but may be a tasty treat every once and a while. We tend to alter potatoes in less healthy ways than other vegetables. How do we top baked potatoes? Butter, sour cream, bacon... Just top potatoes sparingly or healthily and they are a good choice. One of my favorite lunches is a baked potato topped with leftover chili and plain, non-fat Greek yogurt.

Recipe on next page...

Are you curious about all that’s going in our 4-H program?
Check out the Clover Express at the link below! Call our office if you’d like to find out more about how you can get involved.
http://www.ccecc4hce.blogspot.com/
Sugar maple sap is two to three percent sucrose on average, although it can range from one up to
ten or more percent. In addition to sugar, sap contains organic acids, amino acids, minerals and other com-
ounds. Some of these contribute to maple's flavor, and others form insoluble sediment called “sugar sand”
that must be filtered out.

The freeze-thaw, dissolved-gas, pressure differential hypothesis has some holes. Although the mechanism
should work with pure water, it turns out that sap only flows if it contains a minimum level of sucrose. Sap
flow should also happen in any xylem tissue, not just the living sapwood, but that's not the case either. So
the mystery of sap flow continues. Sometimes it's a relief not to have all the answers.

North Country Gardening
**Events and Happenings**

**Gardeners March Madness —**

_Saturday, March 22  Do-It-Yourself Garden Design_ is the floral theme for this workshop which will run from 9:00 am to 2:30 pm at the Elks Lodge in Plattsburgh. The workshop combines presentations by Master Gardener volunteers with hands-on, break out groups to put into practice what you have learned. Your $20 registration feel covers all your supplies, coffee, water, snacks, and a container garden that you will make to take home. _See page 2 for details_

**Master Gardener Recruitment and Training**

If you think that being a Master Gardener Volunteer sounds like it’s right up your alley, you should know that we will be actively recruiting in Clinton and Essex county soon. Training begins next September, but we will accept applications and begin interviews this spring. If you want to be put on our mailing list for application information, please contact Jolene at jmw442@cornell.edu or 561-7450. More information coming soon!

Successful gardening depends on many things, arguably the most important being soil. Give your garden the best start you can; learn about soil!

**Soils 101: A 2-Part Short Course**

- **Part 1: Introduction to Soils** (1.5 – 2 hours)
  Tuesday, March 11<sup>th</sup>, 7:00 pm

- **Part 2: Soil Functions** (1.5 – 2 hours)
  Tuesday, March 18<sup>th</sup>, 7:00 pm

_Classes feature Dr. Kitty O’Neil, CCE Northern NY Crop and Soils Specialist_

**Location:**
Clinton County Extension Office
6064 Route 22, Suite #5
Plattsburgh, NY

Registration cost is $10/class/per person. To register for either or both, contact the Clinton County Cornell Cooperative Extension office at (518) 561-7450.

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**Let us Hear from You**

Do you have ideas for articles you would like to see in North Country Gardening or topics that you would like to know more about? This newsletter is to help you, so your thoughts and interests are important to us. Contact Jolene at 561-7450 or jmw442@cornell.edu if you have suggestions for us.

**Office Hours**

Our office, located at 6064 State Route 22, Suite 5, is open from 9:00 am to 4:30 pm Monday through Friday.

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**Program Outreach**

One of my goals for 2014 is to make horticulture programming more available to some of the outlying areas of Clinton County and to many of our senior citizens who have a love of, or an interest in, gardening. I recognize that at the end of the day, with dinner to prepare and evening activities, it’s not easy to travel to a presentation, workshop, or program, even if it is of interest to you. The Master Gardener volunteers are more than happy to make things easier by bringing programs to you. If you provide the audience, we can manage the rest. We have put together a “menu” of programs you may be interested in. _For you seniors out there, we want to help make it easier for you as well. Senior centers, living facilities, or organizations are encouraged to contact me to explore the possibilities of getting back to gardening. I look forward to hearing from you._ Jolene 561-7450, jmw442@cornell.edu

_North Country Gardening_
North Country Gardening

March 2014

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