



the BeeLine

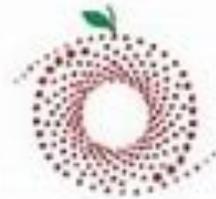


Fall 2019

Newsletter of the Western Cascade Fruit Society

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COSMIC
CRISP.

WHAT’S ALL THE HYPE ABOUT THIS “HOT” NEW APPLE?!?

The “Cosmic Crisp” name was derived from the starbursts on the apple’s skin and the name Honeycrisp, one of the varieties from which the new apple was derived.

Washington State University spent 2-decades to develop this apple cultivar. Cosmic Crisp is being referred to as a “dream apple.” It has perfect flavor and texture and seems to generate passion and/or intrigue whenever it’s name is mentioned.

The juicy new apple, a cross between Honeycrisp and Enterprise, is known for its mouth-watering taste and long shelf life. The New York Times said it’s considered “the most promising and important apple of the future.” Washington farmers ordered 12 million Cosmic Crisp trees, with the first grocery store deliveries in 2019 — the biggest apple launch in history!!!

WSU has an ownership stake in Phytelligence, a company that has delivered more than 1 million plants to growers and nurseries around the country. It has its own 8-acre greenhouse in Burien, Wash., a tissue culture lab in Portland, and an office in Pullman, Wash.

Phytelligence uses a proprietary tissue culture process called MultiPHY that helps grow fruit trees in more efficient and sustainable ways. The four-step process propagates trees in a custom gel blend rather than traditional soil — a method that provides all necessary nutrients without the need for water, which saves time and money for growers. The controlled environment also allows the plants to grow more quickly.

Now you know what all the hype about Cosmic Crisp is about! It deserves it!!

Submitted by Chuck Polance
(former WCFS member for many years, now living in Oregon)



The BeeLine is a quarterly publication of Western Cascade Fruit Society, a non-profit 501(c)3 corporation in the State of Washington.

Can a new apple take over the world?

By David Silverberg Business reporter
17 October 2019

When you hear that a new variety of apple is being launched with a multi-million dollar marketing campaign, you might wonder if you were listening properly, and whether the product is actually an Apple iPhone.

But now starting to hit grocery shelves in the US, and then overseas early in 2020, is a new American-born apple that its backers are convinced will become the new global bestseller - the Cosmic Crisp.

"The stars are aligning for this apple," says Kathryn Grandy, marketing director of US fruit firm Proprietary Variety Management (PVM), the company handling the \$10m launch of the new variety.

A cross-breed between two existing apples - the Honeycrisp and the Enterprise - advocates of the Crisp describe it as some sort of apple holy grail. It is said to be sweet, crisp and juicy. But as importantly, it is said to have a previously unheralded shelf life, staying fresh for up to a year if kept chilled.

"The Cosmic Crisp maintains excellent eating quality in refrigerated storage, easily for 10 to 12 months," says Kate Evans, who co-led the apple's breeding programming at Washington State University's department of horticulture. You might think that this all sounds like hyperbole, but hundreds of apple growers in the Crisp's home state **have bet \$40m that it is going to be a hit.**

The story of the Crisp began back in 1997, when its breeding programme started at Washington State University. The idea was to develop a new variety of apple to help Washington's then beleaguered apple farmers. The state remains the biggest grower of apples in the US, but it had seen sales of its two most-planted varieties - the Golden Delicious and Red Delicious - fall continually over the years, as consumers switched to newer rivals that were both sweeter and stayed crisper for longer, such as Pink Lady and Royal Gala.

Originally known as WA 38, the Cosmic Crisp was given the "cosmic" part of its moniker because its skin colour of white speckles on a dark red background is said to resemble stars in the night sky. The name is now trademarked by the university.

First made available for commercial planting in 2017, Washington's apple farmers had long heard of just how good the new variety was supposed to be. So much so that demand for the Crisp was so high that farmers had to enter a lottery to be able to get their hands on the first seedlings. Their names were randomly drawn by a computer program.

Sales of Crisp seedlings subsequently boomed. Today more than 12 million Crisp trees are growing across Washington, with orchards covering some 12,000 acres. With the first apples now on the shelves, it is estimated that this giant planting scheme - said to be the biggest and fastest in world apple history - has cost the growers a combined \$30m.

In return for this confidence, the Washington farmers have been given the exclusive rights to grow and sell the Crisp worldwide until 2027. And as the Crisp is being marketed as a premium variety, its price reflects this. The first apples are now on sale in the US for \$5 per pound (per 454g), this is more than three times the cost of standard varieties. For every 40lb box sold, a royalty of 4.75% is shared between Washington State University and its commercial partner, the previously mentioned PVM. More than 467,000 40lb boxes are now projected to be shipped before the end of this year, rising to two million in 2020, and 5.6 million by 2021. The apple even has a trademarked slogan - "Imagine the possibilities".

"The rate at which Cosmic Crisp is poised to come into the US market in the next five to eight years is unprecedented," says James Luby, a professor of horticultural science at the University of Minnesota-Twin Cities.

But does the world need another apple variety, what with Pink Lady, Macintosh, Jazz, Gala and hundreds of other brands crowding the produce aisles?

"What sets apples apart from other fruit is that we associate a name and brand to a particular eating experience," says Prof Evans. Bradley Rickard, an economics professor at Cornell University in New York state, is optimistic that the Crisp can indeed shake up an apple industry in desperate need of a game-changer. "If you look at the past 30 years of apple consumption in the US, it's all flat. And the profit margins are thin," says Prof Rickard, who is an expert on the agricultural and food sectors. "The Cosmic Crisp could increase per capita consumption of apples in the US.

Back in Washington state, West Mathison, boss of Stemilt Growers, is now harvesting his Crisps. He says that one negative about the new variety is that it could divide the apple growing community in the US - those that have switched to it, and those that haven't.

"If farmers are investing in new types of apples backed by effective marketing plans, they're doing fantastic," he says. "But if growers are sticking to legacy brands that consumers are moving away from, then the profit margins are thin and sometimes negative."

However, Prof Evans is excited about the Crisp's commercial launch. So much so that she uses an Apple the company analogy. "I wouldn't say this is like the launch of the first iPhone, but more like the latest iPhone, the latest model."

* * * * *



No One-Shot Solution for Spotted Wing Drosophila (SWD)

Calcium hydroxide, kaolin, exclusion netting, trapping, parasitoid wasps, crop selection, timing, etc.

When spotted wing drosophila (SWD) arrived in the U.S. and Europe, a lot of small fruit and tomato growers were forced to abandon their integrated pest management (IPM) programs in order to continue to harvest their crops. However, growing research around the globe is revisiting the concept of integrated pest management within the guise of SWD control.

Dr. Lukas Seehausen, a Research Scientist in Risk Analysis and Invasion Ecology with Centre for Agriculture and Biosciences International (CABI) in Delémont, Switzerland, is a part of a team of researchers across the globe looking at current SWD IPM practices and their effectiveness. While their initial findings were published in the *Journal of Pest Science* in 2016, the research continues as the threat of SWD grows. Seehausen says when it comes to what the team has learned so far in their work with SWD, IPM is essentially the best and only approach.

“There’s no ‘silver bullet’ against SWD or for most invasive pests,” he says. “There’s no single solution for its control. Integrative combinations of control measures are needed to bring damage to an economically acceptable level.”

It’s critical to understand SWD’s habits to make informed crop and variety choices. Researchers around the globe have identified red or darker-colored fruit with thin skin as SWD favorites for oviposition, so selecting varieties that might be less desirable to the pest can give you a leg up on control. Also, Seehausen says growers can implement things like exclusion netting and lure traps, as well as sanitary measures to remove fallen or overripe fruits to control SWD populations.

“Mass trapping of flies in open crops has so far not been shown to be an effective measure,” he says.

Instead, as others’ research indicates, a more effective control measure would be to harvest in intervals to keep the pest out of the perfect fruits.

“SWD adults preferentially lay eggs in ripe or slightly overripe fruits,” he says. “Short harvesting intervals can therefore reduce the number of infested fruits.”

Seehausen says that traditional chemical controls are effective for short-term local pest control, but some traditional chemical sprays and biopesticides should be limited to prevent pest resistance. Research has shown some promising alternatives to broad-spectrum pyrethroids and organophosphates.

“The application of calcium hydroxide or kaolin on ripening fruits has been shown to successfully prevent oviposition by SWD adults,” he says. “These products do not kill beneficial insects and are harmless to humans and, therefore, can be incorporated into an IPM program for certain crops.”

Seehausen’s research team has examined the prospects of natural enemies for a biological control program. After studying several species of parasitoid wasps from Asia, the most promising has been from the genus *Ganaspis*. The challenge has been that the suitability for biological control can vary

because there are at least two different, but very similar, species of this wasp. The hope, though, is as researchers zero in on the feeding habits of this species of wasp, natural enemies can help contain and control populations within and outside the farm, in natural environments.

“Even if effective, such a natural enemy will not eradicate SWD. The combination of several pest management approaches within an IPM program will likely be necessary to lower damage to an economically acceptable level,” he says. “Given natural dynamics between parasitoids and their hosts, the control imposed by the parasitoids is most likely to not work everywhere and at all times. In some locations, and when parasitoid populations are low, additional measures will have to be taken in order to prevent and reduce damage caused by the SWD.”

While it’s not a new finding, Seehausen says growers need to understand the difference between area-wide pest control and targeted control, and the difference between short and long-term control. It’s easy for growers to consider controlling the pest on their farm, but to truly control SWD, you must think more broadly.

“Growers have to think long-term and beyond the borders of their own property,” he says. “SWD attacks wild fruits, too, and re-infests crops effectively from the natural environment,” he says. “Measures taken against the fly in a crop only provide local and short-term control.”

This is where Seehausen says using combinations of IPM methods is more effective throughout the season, with the hopes of reducing the overall pest pressure and population. While growers are familiar with the reasons behind implementing an IPM program, Seehausen says the best way to understand the concept of IPM is to liken it to a toolbox – whether that be parasitoid wasps, exclusion netting, trapping thresholds, environmental controls, etc.

“A carefully planned IPM program allows growers to use several tools from this box, which together will be more useful and effective in handling the problem. IPM is also about not carrying all eggs in one basket, so that if one pest management option turns out to not work very well, other control measures are in place.”

Your IPM program is only as good as you know how to use it. “IPM techniques are only effective if applied at the right moment. For example, nets can only be used after flowering but before the fruits begin to ripen. If mounted too early, pollination will not take place and if mounted too late, SWD will already be on or in the fruits,” he says.

Knowing when and where SWD is present on your farm is critical, which means using lure traps and monitoring. It’s also a good idea to stay informed as to what kind of new control options are available in case you need them, because, as Seehausen likes to say, there’s no one-shot solution for SWD. “SWD is here to stay, and we have to learn how to deal with it in the long term,” he says.

by Christina Herrick / *Growing Produce*

* * * * *

Humans have favored red apples for generations, but rising temperatures could spell the end of a rosy red treat.

By Veronique Greenwood, BBC Future
20th November 2019

The archetypal apple is – no two ways about it – red. There may be yellow apples or green apples in the grocery store too. In some places, you might even find varieties that are striped or mottled with a profusion of hues, like the gorgeous Cox’s Orange Pippin. But red – or occasionally, pure, sharp Granny Smith green – is the color of apples in most alphabet books. It’s an interesting detail, because apples were not always so resolutely monochrome.

The ancestors of the modern apple were wild trees growing in what is now Kazakhstan, on the western slope of the mountains which border western China. Today, wild apple trees still grow there, perfuming the air with fallen fruit and feeding the bears that lumber through the forest, although the wild apples’ numbers have shrunk by 90% in the last 50 years thanks to human development and their future is uncertain. The fruits range from pale yellow to cherry red and spring green, but red is not generally more prominent than the other colors.

Apple color arises from the expression level of certain genes in the skin, scientists have found. David Chagne, a geneticist at Plant and Food Research in New Zealand, explains that sets of enzymes work together to turn certain molecules into pigments called anthocyanins, the same class of substances that give purple sweet potatoes, grapes and plums their color. The levels of these enzymes are controlled by a transcription factor – a protein that regulates how much a gene is expressed – called MYB10, such that the more MYB10 there is, the redder the skin will generally be. In fact, one study found that in apples with red stripes, MYB10 levels were higher in the striped portions of the skin.

Intriguingly, color also depends on temperature. To get an apple that’s fully red, temperatures must stay cool, reportedly because if they climb to above about 40C (104F), MYB10 and anthocyanin levels crash. In the Pyrenees region of Spain, colleagues found normally vividly red striped apples were completely pale after a particularly hot July. As temperatures warm, he suggests, it could become more difficult for apples to turn red.

Chagne and colleagues are looking to breed red-as-red-can-be fruits for the Asian market, where a deep ruby is a popular color, using their understanding of the biology behind color. Perhaps the threat that climate change poses to the red apple will be counterbalanced by our sheer determination to breed them, even if it takes expensive breeding programs. Even before we understood the genetics, colorful apples exerted a strong pull on humans. John Bunker, an apple collector based in Palermo, Maine, has rescued numerous forgotten breeds from extinction. These include apples that used to be grown a

century or more ago including the magnificent Black Oxford, an apple whose red is so dark you might mistake it for an enormous plum before seeing its brilliant white flesh. “The colors are phenomenal. Color probably didn’t trump other features of an apple when growers were evaluating a new tree, however. Instead, they focused on the taste and use for the apple: some are good for cider, some for pies, some for sauce, and some for eating. It didn’t much matter exactly what the fruit looked like and whether it looked the same from tree to tree, because farmers were growing fruit for themselves and for their local market, and function mattered more than looks.

Bunker says that all changed about a hundred years ago. “In a culture of small diversified farms and small diversified farm economies, uniformity is of limited value,” he says. But if apples grown for thousands of miles around are bought as interchangeable, the color becomes a kind of branding. It says “this is what to expect”. In this commodity system, uniformity was growing more valuable. At the same time, apples began to be picked before they were truly ripe so they could be shipped long distances without rotting.

There was a problem, however. “Color is a ripeness indicator,” Bunker points out. Apples picked early didn’t have the right color. But then an apple with a mutation that gave it a rich red tone before it was ripe came to the fore, he explains. That apple was eventually dubbed the Red Delicious, and in 1921 was released commercially for orchardists.

Other apples rose in the ranks as well – varieties that were discovered to have a regular, uniform color, especially if it came before the apple had actually reached full ripeness, were good for business.

The number of varieties farmers grew started to shrink. And little by little, some of these varieties stopped tasting so good, as the emphasis on appearance didn’t encourage growing for flavor. David Bedford, an apple breeder at University of Minnesota, says that he grew up eating Red Delicious and consequently not being very fond of apples: it took him trying another variety in college to awaken him to the possibility that apples could be different. He and his colleagues are behind the wildly successful Honeycrisp apple, released some years ago and known for its juicy crispness. And in fact, the Honeycrisp they released was a yellow-and-red-striped beauty.

But even in apples bred to get away from the curse of the Red Delicious, the inexorable drive for red continues. People have now introduced Honeycrisps with mutations that make them more and more red. “It happens to every single apple on the market,” says Bedford. “That’s just the nature of our desire to have apples the way we want to them to look... ever since man has been making choices they’ve been making them redder and redder.”

The redder apples might not be better than the yellower ones – in fact they might be worse – but, he explains that “red sells, that’s the problem”. To attempt to correct for this in future apples, the University of Minnesota has released other apples under what’s called a club model. In this system, growers aren’t allowed to select for redder fruit.

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Rising temperatures—From pg. 4

When you see the wild variety of colors that is possible, and recognize the danger of an ever-redder drift disconnected from true flavor, it can make you hope for better days to come for apple eaters. Will the apple's true, weird nature ever triumph over the hunt for red? History suggests it will be an uphill battle, but we can all dream.

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Note from Lori Brakken, STFS, OOS, et al

I perceive nutrition more with flavor & possibly flesh color - more than with an apple's skin color, but it's just a perception.

I do think that sun exposure, soil nutrients and length of season adds to skin color. Over near Sequim there are apples that come to the ID table that have much more color than expected. Newtown Pippins have come in with large areas of deep color blushes. One person had said that they added boron, among other nutrients to the soil. My north-facing slope espaliers take longer to ripen and don't color up as other exposures do. I'm sure its cooler here also.

I'm not sure about this claim of coolness = redness, from my own experience on cool north-facing slope.

Lori

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Firecracker Red Flesh Apple Tree™

This little apple is a real blast! You will love the intense, sweet-tart flavor of the Firecracker™ Red Flesh Apple Tree and its striking, deep red flesh. Resembling a miniature Red Delicious, Firecracker™ is a great apple for salads, desserts and juice. A naturally dwarf tree, Firecracker™ produces abundant crops and may be hardy to minus 40° F.



2019 NWREC Field Day

The WSU Mount Vernon NWREC Annual Field Day was held on Thursday, July 11 this year with a slightly different format. The goal was to create opportunities for more in depth discussions with “hands-on” experiences for participants.

Faculty and graduate students hosted a 90 minute tour of some of the nearly 150 acres of active research plots at the Center and followed up with an hour long research exhibit with booths with additional demonstrations and research posters. The focus of the field day is to present current research projects and share how work at the Center impacts growers, consumers, agricultural businesses and local economies throughout the region.

This year's featured talks during the tour were focused on soil health, vegetable seed production and potato disease management. Additional presentations included cider fermentation, vegetable grafting, weed management, plant insect pest management and small fruit production. Faculty and graduate students were available throughout the event for additional discussions on their research.

Participants enjoyed a locally prepared barbeque and were able to meet Dr. André Wright, WSU Dean of the College of Agricultural, Human, and Natural Resources Sciences (CAHNRS), and several other CAHNRS administrators, including Associate Deans, Department Chairs, and Research & Extension Center Directors. Earlier in the day, CAHNRS leadership had convened at NWREC for it's quarterly R&E Center administrative meeting.

The Field Day was the best attended in years and there were a lot of conversations occurring throughout the event. Make plans to join us next summer on the second Thursday in July, July 9, 2020.

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Sustainable Ag Syllabus

Farmers seeking self-directed education to hone their homesteading skills can turn to ATTRA, a program that was developed by the National Center for Appropriate Technology to provide information and technical help to people involved in sustainable agriculture, including farmers, gardeners, extension agents, and educators. [ATTRA's website](http://attra.ncat.org) supplies numerous guidebooks that cover a wide range of topics. Search for “Publications” on the site to find reading materials on pest management, composting, crop insurance, water conservation, and more. <https://attra.ncat.org>

All of ATTRA's guidebooks are free to download and read digitally, and also come in hard copies for a small fee. However, the program wants its materials to be accessible, so if a particular publication's price is outside your budget, you can call 800-346-9140 to request a free copy. You can also supplement your reading with ATTRA's free videos, podcasts, and narrated slideshows; just click on the “Multimedia” tab online to dive in.

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Humic Acid: The Science of Humus and How it Benefits Soil

By Michael Martin Meléndrez/*Eco Farming Daily*

Humic acid is a group of molecules that bind to, and help plant roots receive, water and nutrients. High humic acid levels can dramatically increase yields. Humic acid deficiency can prevent farmers and gardeners from growing crops with optimum nutrition. Conventional wisdom today ignores humic acids, though, holding that it's impossible to grow and maintain an urban landscape such as a park, golf course, or lawn, without high-analysis NPK fertilizers.

We can adjust our soil biology and chemistry and achieve better yields if we understand its characteristics.

We must begin by understanding that there's a difference between soil organic matter and humus. "Humus" is a general term that describes a group of separate but distinct humic substances. "Soil organic matter" is material that is decomposing at various rates in the ground.

Some of the most common substances we collectively refer to as "humus" include:

Fulvic acid: a yellow to yellow-brown humic substance that is soluble in water under all pH conditions and is of low molecular weight.

Humic acid: a dark-brown humic substance that is soluble in water only at higher soil pH values and is of greater molecular weight than fulvic acid. Humic acid may remain for centuries in undisturbed soil.

Humins: a black humic substance that is not soluble in water at any pH, has a high molecular weight, and is never found in base-extracted liquid humic acid products.

Adding a small amount of humus to an acre of soil can achieve positive results.

Applying organic matter is certainly an excellent way to remineralize a soil that has been leached or has no chemical reactions, such as with some sands. Sand with a low cation exchange capacity (CEC) has difficulty holding onto the cations of nutrients, and these cations can easily leach deep into the soil and become unavailable for plant uptake.

Sandy soils are also unable to hold onto water when arid conditions prevail and humus is lacking. Sands reside in a condition of "feast or famine," since water and nutrients are only available for a short time after they are applied. Bio-molecules of humus can help retain water and the ionized nutrients that are produced by the natural cycling of organic biomass, compost, or other sources of fertilizer.

The electro-negativity factor of humic acids is key in developing and maintaining a healthy and sustainable soil. The source of these humic acids in a sustainable agricultural program, organic certified farm, or urban landscape can be decaying organic matter such as compost. In essence, this is fertilizer in an organic form. It is therefore important to know the ingredient source and the nutrient analysis of your compost.

Humus is powerful stuff, and a tiny amount can produce a huge measurable result. We have seen as little as 40 total pounds on an acre of farmland increase the yield of a crop dramatically.

Humic acids are extremely important as a medium for transporting nutrients from the soil to the plant because they can hold onto ionized nutrients, preventing them from leaching away. Humic acids are also attracted to the depletion zone of the plant root. When they arrive at the roots, they bring along water and nutrients the plant needs.

The depletion zone is the area close to the root of a plant from which the root draws (depletes) nutrients. This zone can become particularly depleted if there is a lack of either humic acid or mycorrhizal fungus. When plants are mycorrhizal, the depletion zone is of less importance. Mycorrhizae have hyphae micro-tubes that can extend much further into the soil than the host plant can reach. They can gather mineral nutrition for the benefit of the host plant from outside the depletion zone. Humus is even more critical for plant nutrient availability and uptake if there aren't healthy mycorrhizal relationships in the soil. Positive ions are more easily absorbed by a plant's root because the root has a negative charge. In other words, the positive (cation) is attracted to negative (the living root). Humic acids hold cations (positive ions) in a way they can be more easily absorbed by a plant's root, improving micronutrient transfer to the plant's circulation system. This works because humic acids (fulvic, humic, and fulvic) pick up positive ions and are then attracted to the root depletion zone and to the hyphae micro-tubes of mycorrhizae.

Since the root's negative charge is greater than humic acid bio-molecules' negative charge, scientists theorize that the micronutrients are taken up by the plant's root and are absorbed by the plant's circulation system. Some of the micronutrients are released from the humic acid molecule as they enter the root membrane, but we are now realizing that the plant will also uptake some of the lighter molecular-weight humic acids as well. In essence, the humic substances are chelating such cations as magnesium (Mg^{2+}), calcium (Ca^{2+}), and iron (Fe^{2+}). Through chelation, humic substances increase the availability of these cations to plants.

Compost and other sources of decomposing organic matter are not an efficient way to build soil humus levels. Compost rapidly decomposes and leaves its minerals behind, releasing carbon into the atmosphere as CO_2 . Humic substances, on the other hand, are stable, long-lasting bio-molecules. Components of humus have a mean residence time (based on radiocarbon dating, using extracts from non-disturbed soils) of 1,140 to 1,235 years, depending on the molecular weight of the humic acid.

If you really want to fix or rehabilitate a soil, increase its CEC, improve its tilth and porosity, improve water availability for conservation, and therefore make a soil a healthier terrestrial biosphere for all plants, roots, microorganisms, you must depend on humus. Humus is a product of soil chemistry, and is dependent upon a source of its precursor chemicals: amino acids.

Amino acids are the building blocks of protein. The best source of the amino acids in a natural ecotone are produced by the *Glomus* species of mycorrhizae. These are associated with any grass in a natural, undisturbed site. The tallgrass prairies of the Midwest exemplify this soil-building process better than any

Cont. on pg. 7



From pg. 6 Humic Acid

ecotone on earth, because grasses utilize a Glomus-mycorrhizal relationship. This is why there is so much humus-rich topsoil in the Tall Grass Prairies. Glomus makes a soil protein called glomalin, a substance that is rich in amino acids. Combined with humus, they create a huge carbon sequestering and banking factor.

Scientists can measure the percentage of calories in compost that come from proteins (the amino acids), carbohydrates, and fats. This enables them to measure the lack of humus-making potential of compost. Even in supreme-quality compost, the percentage of calories coming from amino acids (protein) is less than 5 percent. Since it is difficult to rely on the perfect amino acid ratio in compost because of differing manufacturing quality controls and ingredient consistency, we cannot predict a 100 percent efficient conversion of all these amino acids into humic substances. Compost or other soil amendments of organic matter are therefore not a reliable way of increasing soil humic substances.

Attempting to add adequate amounts of humic acid through application of compost would require such a huge amount that it could lead to overdosing the site with nutrients. In fact, the better the quality of the compost, the more concentrated the nutrients will be, and the less you should use. In the case of our TTP Supreme Compost, for example, we recommend using it sparingly – never more than 60 pounds per 1,000 square feet or 2,600 pounds per acre. And this is assuming no other fertilizer is being used at the same time.

Humus supplementation is necessary if you want humus. You can measure the quantity of humic acid in a compost product at a qualified lab. A good quality compost will measure around 5 to 8 percent humic acids.

One obvious benefit of humus we have seen at our Arboretum in Los Lunas, New Mexico, has been the aggregation of clay. This aggregation has made the clay more porous, soft, and aerobic, with better drainage, resulting in deeper root growth of all plants. The site was purchased in 1986 with clay soil 12 feet deep and a pH ranging from 8.3 to 9.2 – so alkaline that in the winter the site would turn white.

Today we have one of the largest oak species collections of the Quercus genus in the United States, and the largest collection of native oaks of the Chihuahuan Desert Region in North America. Also on the site are several types of redwoods, maples, dogwoods and giant timber bamboo. None of these plants should be able to grow on soils with the conditions we started with, but with the power of humic acids we have rehabilitated the soils to a productive and healthy level. Finally, “Humic Acids: Marvelous Products of Soil Chemistry” (The Journal of Chemical Education, December 2001) states, “Humic acids are remarkable brown to black products of soil chemistry that are essential for healthy and productive soils. They are functionalized molecules that can act as photo-sensitizers, retain water, bind to clays, act as plant growth stimulants, and scavenge toxic pollutants. No synthetic material can match humic acid’s physical and chemical versatility.”

Submitted by Judi Stewart

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Crows in the Orchard

Studies have shown that the crow population is on the rise because of their ability to flourish alongside humans, the diversity of their diet, and their intelligence. Crows are members of the *Corvidae* family, which includes ravens, jays, magpies, rooks, and a few other species of birds. There are an estimated 40 species of crows around the world.

The American crow (*Corvus brachyrhynchos*) is widely distributed throughout North America, with the highest densities observed in the Southeast and the Great Lakes regions. The American Crow is a very creative species, it can survive in natural and modified habitats including urban, riparian, and farms, but they tend to avoid desert regions like southern Texas, Arizona, and New Mexico.

The lifespan of crows is between 6 to 9 years. However on July 2, 2006, the Associated Press reported that a pet crow named Tata lived to the age of 59 years. Suburban crows have significantly higher overall nest success but fledge significantly less per nest than rural crows.

Crows have exceptionally large forebrains, the site of the brain that receives and processes information, such as thinking, understanding language, and controlling motor functions. Primatologists consider them to have similar levels of brain function as primates. The New Caledonian and the Hawaiian crows are known to use tools to extract insects from deep crevasses and holes.

American Crow is mostly a non-migratory bird, but it may move from Northern to Southern regions in the fall and back to their original habitat in the spring. They are very social birds; males and sometimes families gather in large groups called ‘roosts’ in late fall and winter, possibly to avoid predators.

Crows prefer to feed on the ground in open areas close to sources of water. Despite their tendency to feed on roadkill, American crows have no special diet; they are omnivores, so they scavenge for just about anything they find. Generally, they feed on pests like rodents, insects, seeds, and wild berries. However, when the weather is dry and they cannot find a source of water or food, they will move into orchards to feed on ripe fruits and puncture drip lines for water.

During a persistent drought in central Illinois in July and August of 2017, a huge resident population of American crows destroyed nearly every fruit with a red blush in two Honeycrisp apple blocks, especially fruits on the outside rows adjacent to open fields. We also saw some damage on ripe tomato fruits. Interestingly, we saw very little fruit damage in four blocks of other apple varieties adjacent to the Honeycrisp block.

We tried to drive them away from the orchard with various non-chemical methods like flashing ribbons, predatory bird callers, a scarecrow, and even a propane cannon, but by the end of the second day that proved ineffective.

The American crow is listed under the Federal Migratory Bird Treaty Act of 1918. However, all states, except Hawaii, allow hunting crows in the winter.

by Mosbah Kushad/*Growing Produce*

submitted by Judi Stewart

* * * * *

Helping Your Plants With A Neem Oil Foliar Spray

By: Heather Rhoades, Gardening Know How

Finding safe, non-toxic pesticides for the garden that actually work can be a challenge. We all want to protect the environment, our families and our food, but most non-manmade chemicals available have limited effectiveness. Except for neem oil. Neem oil insecticide is everything a gardener could want. What is neem oil? It can safely be used on food, leaves no dangerous residue in the soil and effectively reduces or kills pests, as well as prevents powdery mildew on plants.

What is Neem Oil?

Neem oil comes from the tree *Azadirachta indica*, a South Asian and Indian plant common as an ornamental shade tree. It has many traditional uses outside of the insecticidal traits. For centuries, the seeds have been used in wax, oil and soap preparations. It is currently an ingredient in many organic cosmetic products too. Neem oil can be extracted from most parts of the tree, but the seeds hold the highest concentration of the insecticidal compound. The effective compound is Azadirachin, and it is found in highest amounts in the seeds. There are numerous neem oil uses, but gardeners hail it for its anti-fungal and pesticide properties.

Neem Oil Uses in the Garden

Neem oil foliar spray has been shown to be most useful when applied to young plant growth. The oil has a half life of three to 22 days in soil, but only 45 minutes to four days in water. It is nearly non-toxic to birds, fish, bees and wildlife, and studies have shown no cancer or other disease-causing results from its use. This makes neem oil very safe to use if applied properly.

Neem oil insecticide works as a systemic in many plants when applied as a soil drench. This means it is absorbed by the plant and distributed throughout the tissue. Once the product is in the plant's vascular system, insects intake it during feeding. The compound causes insects to reduce or cease feeding, can prevent larvae from maturing, reduces or interrupts mating behavior and, in some cases, the oil coats the breathing holes of insects and kills them. It is a useful repellent for mites and used to manage over 200 other species of chewing or sucking insects, including: aphids, mealybugs, scale, and whiteflies.

Neem oil fungicide is useful against fungi, mildews and rusts when applied in a 1 percent solution. It is also deemed helpful for other kinds of issues such as: root rot, black spot, and sooty mold.

How to Apply Neem Oil Foliar Spray

Some plants can be killed by neem oil, especially if it is applied heavily. Before spraying an entire plant, test a small area on the plant and wait 24 hours to check to see if the leaf

has any damage. If there is no damage, then the plant should not be harmed by the neem oil. Apply neem oil only in indirect light or in the evening to avoid foliage burning and to allow the treatment to seep into the plant. Also, do not use neem oil in extreme temperatures, either too hot or too cold. Avoid application to plants that are stressed due to drought or over watering. Using neem oil insecticide about once a week will help kill pests and keep fungal issues at bay. Apply as you would other oil-based sprays, making sure the leaves are completely coated, especially where the pest or fungal problem is the worst.

Is Neem Oil Safe?

The packaging should give information on dosage. The highest concentration currently on the market is 3%. When used properly, it is non-toxic. Never drink the stuff and be sensible if you are pregnant or trying to get pregnant – out of all the neem oil uses, one that is currently being studied is its ability to block conception. The EPA says the product is generally recognized as safe, so any residual amount left on food is acceptable; however, always wash your produce in clean, potable water before consumption. There has been concern about the use of neem oil and bees. Most studies specify that if neem oil is used inappropriately, and in massive quantities, it can cause harm to small hives, but has no effect on medium to large hives. Additionally, since neem oil insecticide does not target bugs that do not chew on leaves, most beneficial insects, like butterflies and ladybugs, are considered safe.

Resources: <http://npic.orst.edu/factsheets/neemgen.html>
<http://ipm.uconn.edu/documents/raw2/Neem%20Based%20Insecticides/Neem%20Based%20Insecticides.php?aid=152>

http://www.epa.gov/opp00001/chem_search/reg_actions/registration/decision_PC-025006_07-May-12.pdf

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Attention WCFS Members

Want to know instantly what's happening in the organization?

Subscribe to the WCFS Forum. It's a benefit of membership. The Forum is private and closed to the public. It keeps us together and on top of what's happening in our chapters.

The Forum's host has changed to **Groups.io**.
Contact: Mike Geiser, Forum Administrator,
email: oldfaithfulgeiser@gmail.com



Apple Pear Galette w/ Apple Cider Caramel

NY Times



THE PASTRY:

1 cup flour, plus more for the work surface

½ cup whole-wheat flour

2 tablespoons granulated sugar

¾ teaspoon salt

1 ¼ sticks of cold unsalted butter, cut into pieces

4 tablespoons ice water

1 large egg, lightly beaten, for brushing

Sanding sugar, for sprinkling

THE FILLING:

1 to 2 crisp apples, peeled, cored and very thinly sliced

1 to 2 just ripe Bartlett pears, cored and thinly sliced

⅓ cup packed dark brown sugar

1 Tbs. cornstarch

¾ tsp. freshly grated lemon zest

¼ tsp. ground cinnamon

2 Tbs. unsalted butter, cut into pieces

THE CARAMEL:

2 cups apple cider

⅓ cup packed dark brown sugar

2 Tbs. unsalted butter

½ tsp. salt

2 Tbs. heavy cream

PREPARATION

1. In the bowl of a food processor, combine flours, sugar and salt. Add the butter and pulse until the mixture resembles coarse sand with some larger pieces. Add the ice water and pulse just until the mixture is evenly moistened. Tip the mixture out onto a piece of plastic wrap. Use the edges of the plastic to pack the dough into a disc. Wrap and refrigerate for at least 1 hour and up to 3 days.

2. Heat the oven to 400 degrees. In a large bowl, toss together apples, pears, sugar, cornstarch, lemon zest and cinnamon. On a lightly floured piece of parchment, roll the dough out into a 12-inch circle. Top the dough with the prepared fruit in concentric circles leaving a 1 1/2-inch border. Lift and press the edges up over the fruit, folding as necessary. Using the parchment paper, transfer the galette to a rimmed baking sheet. Chill for 10 minutes.

3. Brush the border of the pastry with the beaten egg and sprinkle with sanding sugar, if using. Dot the fruit with the butter. Bake until the filling is tender and the crust is deep golden brown, about 45 minutes. Some of the juices may leak out, but that's O.K.

4. Meanwhile, make the caramel: Bring apple cider to a boil over medium-high heat in a small saucepan. Continue to cook the cider until it has reduced to 1 cup liquid, about 13 to 14 minutes. Then add brown sugar, butter, and salt and stir to combine. Reduce heat to maintain a simmer, and continue to cook the mixture, whisking often, until it has become syrupy and thickened slightly, about 13 to 15 minutes. Whisk in the cream and set aside to cool slightly.

5. Remove tart from the oven, and let it cool slightly on the pan on a rack. Transfer the galette to a serving plate and drizzle with caramel. Serve warm or at room temperature with any remaining caramel. * * * * *

Hard Cider Nurseries: Tree and Scionwood Sources

Carol Miles and Jacqueline King WSU Mount Vernon NWREC 16650 State Route 536, Mount Vernon, WA 98273 Tel. 360-848-6150 Email milesc@wsu.edu <http://cider.wsu.edu/> 10/04/2019

Listed below are some nursery sources that supply trees and/or scionwood of the apple varieties used for hard cider. Other commercial nurseries may provide custom grafting services, at prices and quantities to be negotiated by the customer. Customers must contact the nursery at least 1 year in advance of planting to arrange for grafted cider apple trees. This listing does not constitute an endorsement, nor does it imply a recommendation over any sources not listed.

Adams County Nursery 26 Nursery Road, P.O. Box 108, Aspers, PA 17304 (800) 377-3106 Email contact form online <https://www.acnursery.com/>

Albemarle Ciderworks/Vintage Virginia Apples P.O. Box 210, North Garden, VA 22959 434-297-2326 Email contact form online <https://www.albemarleciderworks.com/> Scionwood also available for orders in season.

Big Horse Creek Farm P.O. Box 70, Lansing, NC 28643 oldapple@bighorsecreekfarm.com <http://www.bighorsecreekfarm.com/> Scionwood also available for orders in season.

Biringer Nursery PO Box 2809, Mount Vernon, WA 98273 360-848-5151 www.biringer nursery.com/ Wholesale only, inquire for custom grafting.

Burnt Ridge Nursery & Orchards, Inc. 432 Burnt Ridge Road, Onalaska, WA 98570 360-985-2873 mail@burntridgenursery.com www.burntridgenursery.com Scionwood also available for orders in season.

Cameron Nursery LLC PO Box 300, Eltopia, WA 99330 509-619-5679 acam@fastmail.us <http://www.cameronnursery.com/> Wholesale rootstock and fruit trees.

Century Steep Cider 60 Booker Road, Connell, WA 99326 509-619-5679 centurysteep@gmail.com Scionwood available for orders in season.

Cider Babies PO Box 936, Stayton, OR 97383 470 23rd Ct. NW, Salem, OR 97304 503-703-3730 503-913-5875 philip@ciderbabies.com <http://www.ciderbabies.com/> Bare root tree nursery specializes in cider apple varieties.

Cider Supply LLC Chris@CiderSupply.com <http://www.applescions.com/index.html> Cider apple, perry pear, and Asian pear scionwood; ships only to domestic U.S. (lower 48 states).

Cloud Mountain Farm Center 6906 Goodwin Road, Everson, WA 98247 360-966-5859 info@cloudmountainfarmcenter.org <http://www.cloudmountainfarmcenter.org/> A diverse collection of hard cider apple trees, custom grafting available.

Cummins Nursery 1408 Trumansburg Rd, Ithaca NY 14850 607-227-6147 <http://www.cumminsnursery.com> Discount rates for custom orders

Fedco Seeds PO Box 520, Waterville, ME 04903 207-426-9900 <http://www.fedcoseeds.com/trees.htm> Scionwood also available for orders in season.

Feil 1908 Family Orchard 13073 SR2, Wenatchee, WA 98802 509-884-7570 feilorchards@juno.com Currently planting a variety of cider and perry trees.

Grandpa's Orchard PO Box 773, Coloma, MI 49038 877-800-0077 269-468-7050 Email contact form online <https://www.grandpasorchard.com/>

Greenmantle Nursery 3010 Ettersburg Road, Garberville CA 95542 707-986-7504 <http://www.greenmantlenursery.com/> Ships larger stock only to CA, OR, and WA

Heritage Cider Supply 10112 Canyon Rd E Suite 8-879, Puyallup, WA 98373 469-751-TREE Traditional English and American cider varieties on different rootstocks, cider making equipment. www.heritagecidersupply.com

Hidden Hollow Orchards & Nursery P.O. Box 1222, Moses Lake, WA 98837 anitah927@q.com <http://www.hhciderapples.com/> Traditional English and American cider varieties; custom grafting available.

Hostetler Farms 2357 East County Rd. 400 South, Clayton, IN 46118 317-539-4067 or 317-281-8273 HostetlerFarmsLLC@gmail.com <http://www.hostetlerfarms.com/> Over 60 cider and heirloom varieties, custom grafting and equipment.

Idyll Acres, LLC 13364 Atwater Lane, Lake Oswego, OR 97034 richard@hostetter.com <https://idyll-acres.com/> Both fruit and trees of cider and heirloom varieties.

Iron Root Orchards 11 Home Place Lane, Omak, WA 98841 509-826-1672 509-846-3131 eddiefugazi@hotmail.com <http://www.ironrootorchards.com/> Over 200 cider and heirloom varieties, custom grafting available; certified organic.

Maple Valley Orchards, LLC 4520 Hilltop Drive, Suamico, WI 54173 920-412-5741 info@MapleValleyOrchards.com <http://maplevalleyorchards.com/> Cider, heirloom, and red flesh varieties.

Cont. pg. 11



From pg. 10 Hard Cider Nurseries

Masonville Orchards 4545 Cobb Lake Drive, Fort Collins, CO 80524 970-231-6399 walt@masonvilleorchard.com <http://www.masonvilleorchard.com/> Over 200 cider and heirloom varieties, scionwood available for orders in season.

Meyer Nursery & Orchards 3795 Gibson Rd. NW, Salem, OR 97304 1-800-779-0440 info@meyernursery.com <https://www.meyernursery.com/index.htm> Cider and heirloom varieties.

Northwest Cider Supply Monmouth, OR 97361 503-877-3171 info@NorthWestCiderSupply.com <https://northwestcidersupply.com/index.htm> Apple scionwood, rootstocks; orchard tools and supplies are also available.

Orange Pippin Fruit Trees Orange Pippin is a limited company registered in the UK; the US office is based at Cummins Nursery in Ithaca, NY. All trees sold in the USA are grown in the USA. 607-330-6015 info@orangepippintrees.com. <https://www.orangepippintrees.com/trees/cider-apple-trees>

One Green World 6469 SE 134th Ave., Portland, OR 97236 1-877-353-4028 customercare@onegreenworld.com <https://onegreenworld.com/>

Raintree Nursery 391 Butts Rd., Morton, WA 98356 1-800-391-8892 <https://www.raintreenursery.com/> In addition to the varieties listed, custom grafting in commercial quantities upon request.

Renaissance Orchards 5329 Olson Rd., Ferndale, WA 98248 306-305-5242 chris@cidersupply.com <http://renaissanceorchards.com/> Scionwood of over 300 European cider varieties; contact for list of available cultivars.

Salt Spring Apple Co. 529 Fulford-Ganges Road, Salt Spring Island, BC V8K 2K1, Canada 250-537-4935 admin@SaltSpringAppleCompany.com <https://www.saltspringapplecompany.com/> Scionwood of over 300 apple varieties, including cider, heirloom, and red fleshed apples. Export requirements prevent shipping to the United States or countries other than Canada.

Skipley Farm 7228 Skipley Rd, Snohomish, WA 98290 206-679-6576 <https://skipleyfarm.com/> Organic; scionwood of some cider apples and many other fruits available in season.

Southmeadow Fruit Gardens/Grootendorst Nurseries PO Box 211, Baroda, MI 49101 269-422-2411 smfruit@aol.com <http://www.southmeadowfruitgardens.com/index.html>

Springwood Valley Farm 7405 SW Lee Rd., Gaston, OR 97119-9176 503-985-3200 springwdfarm@gmail.com <http://www.springwoodvalleyfarm.com/> Oregon licensed nursery, scionwood and custom grafting.

Stark Bro's Nurseries PO Box 1800, Louisiana, MO 63353 800-325-4180 Email contact form online <https://www.starkbros.com/products/fruittrees/apple-trees>

Summerland Varieties Corporation 105-13677 Rosedale Ave., Summerland, BC V0H1Z5 CANADA 250-404-0088 info@summerlandvarieties.com <https://www.summerlandvarieties.com/> Budwood and scionwood of cider, heirloom, and Canadian varieties. An Import Permit from the country importing from Canada is required. Additional documentation by SVC: Phytosanitary certificate.

Trees of Antiquity 20 Wellsona Road, Paso Robles, CA 93446 805-467-9909 <http://www.treesofantiquity.com/>

Twisted Tree Farm 279 Washburn Road, Spencer, NY 14883 607-589-7937 ttfarm279@gmail.com <http://www.twisted-tree.net/> Scionwood available for orders in season.

Vintage Virginia Apples/Albemarle CiderWorks 2545 Rural Ridge Lane / PO Box 210, North Garden, VA 22959 434-297-2326 fruit@albemarleciderworks.com <https://www.albemarleciderworks.com/> <https://vintagevirginiaapples.myshopify.com/> Scionwood available for orders in season, also rootstock.

Wagon Wheel Orchard 15380 Edgerton Road, Gardner, KS 66030 913-893-6050 <http://www.wagonwheelorchard.com/> Bench grafting and trees of cider and heirloom apple varieties.

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Hardy Kiwifruit Breeding Project—2019

Fellow Actinidia Enthusiasts: Please refer to Bob Glanzman's report: HKBP.2019-SUMMARY.pdf which is a photographic Summary of the Hardy Kiwifruit Breeding Project in 2019. We still haven't found a tetraploid male Kiwi Gold (*A. chinensis* var. *chinensis*) anywhere in the USA to use as the pollen parent for 2020 crosses but hope to get lucky and find one during ploidy testing this Winter.

There are still only four participants in the Hardy Kiwifruit Breeding Project, all in the USA, so if you have Actinidia contacts in Europe, Asia, or especially in the Southern Hemisphere, please feel free to share information about the Breeding Project with them. There may still be time for folks in the Southern Hemisphere to participate in 2019 and have seeds to share in 2020.

Bob Glanzman, Seattle, Washington

Visit my website: <https://kiwifruitsalsa.wordpress.com>

* * * * *

Apple sleuths hunt Northwest for varieties

believed extinct

by GILLIAN FLACCUS Associated Press
Wednesday, November 20th 2019

PULLMAN, Wash. (AP) — The apple tree stands alone near the top of a steep hill, wind whipping through its branches as a perfect sunset paints its leaves a vibrant gold. It has been there for more than a century, and there is no hint that the tree or its apples are anything out of the ordinary. But this scraggly specimen produces the Arkansas Beauty, a so-called heritage fruit long believed to be extinct until amateur botanists in the Pacific Northwest tracked it down three years ago. It's one of 13 long-lost apple varieties rediscovered by a pair of retirees in the remote canyons, windswept fields and hidden ravines of what was once the Oregon Territory.



E.J. Brandt and David Bencoter, who together form the nonprofit Lost Apple Project, log countless hours and hundreds of miles in trucks, on all-terrain vehicles and on foot to find orchards planted by settlers as they pushed west more than a century ago. The two are racing against time to preserve a slice of homesteader history: The apple trees are old, and many are dying. Others are being ripped out for more wheat fields or housing developments for a growing population. "To me, this area is a goldmine," said Brandt, who has found two lost varieties in the Idaho panhandle. "I don't want it lost in time. I want to give back to the people so that they can enjoy what our forefathers did." Brandt and Bencoter scour old county fair records, newspaper clippings and nursery sales ledgers to figure out which varieties existed in the area. Then they hunt them down, matching written records with old property maps, land deeds and sometimes the memories of the pioneers' great-grandchildren. They also get leads from people who live near old orchards. The task is huge. North America once had 17,000 named varieties of domesticated apples, but only about 4,000 remain. The Lost Apple Project believes settlers planted a few hundred varieties in their corner of the Pacific Northwest alone.

The Homestead Act of 1862 gave 160 acres (65 hectares) to families who would improve the land and pay a small fee, and these newcomers planted orchards with enough variety to get them through the long winter, with apples that ripened from early spring until the first frosts. Then, as now, trees planted for eating apples were not raised from seeds; cuttings taken from existing trees were grafted onto a generic root stock and raised to maturity. These cloned trees remove the genetic variation that often makes "wild" apples inedible — so-called "spitters." Bencoter, who retired in 2006 after a career as an FBI agent and an IRS criminal investigator, pursues leads on lost apples with the same zeal he applied to his criminal cases. In one instance, he found county fair records that listed winners for every apple variety growing in Whitman County, Washington, from 1900 to 1910 — an invaluable treasure map. In another, he located a descendant of a homesteader with a gigantic orchard by finding a family history she posted online. Once he discovers a forgotten orchard, Bencoter spends hours mapping it. He has pages of diagrams with a tiny circle denoting each tree, with GPS coordinates alongside each dot. A lengthy computer database lists apples including the Shackelford, the Flushing Spitzenburg and the Dickinson — all varieties rediscovered by the project. Apples from newly discovered trees are placed in a Ziploc baggie and carefully labeled with the tree's latitude and longitude and the date the fruit was collected. The apples are then shipped to the Temperate Orchard Conservancy more than 400 miles (640 kilometers) away in Molalla, Oregon, for identification. There, experts work to identify them using a trove of U.S. Agriculture Department watercolors and old textbooks. Once a variety is identified as "lost," the apple detectives return to the field to take cuttings that can be grafted onto root stock and planted in the conservancy's vast orchard, to be preserved for future generations. The trees could eventually boost genetic diversity among modern-day apple crops as climate change and disease take an increasing toll, said Joanie Cooper, a botanist at the Temperate Orchard Conservancy who's helped identify many of the lost varieties found in northern Idaho and eastern Washington. She and two others founded the nonprofit conservancy in 2011, and operate it on a shoestring, after recognizing the need for a repository for rare fruit trees in the U.S. West. "You have to have varieties that can last, that can grow, produce fruit, survive the heat and maybe survive the cold winter, depending on where you are," Cooper said. "I think that's critical." For Bencoter and Brandt, however, the biggest joy comes in the hunt. Brandt, a Vietnam veteran and passionate historian, last year found a homestead near Troy, Idaho, by matching names on receipts from a nursery ledger with old property maps. Three wind-bent apple trees neatly spaced along the edge of a wheat field were all that remained of the orchard. Brandt collected the apples, hoping one was the Enormous Pippin, a lost variety he saw listed in the sales ledger.

Cont. on pg. 13



Apple sleuths cont. from pg. 12

Months later, he learned he had instead found the Regmalard, a yellowish apple with vibrant red splashes on its speckled skin. It hadn't even been on his radar. "It's a lot of footwork and a lot of book work and a lot of computer work. You talk to a lot of people," Brandt said, savoring the memory. "And with that type of information, you can zero in a little bit — and then after that, you just cross your fingers and say, 'Maybe this will be a lost one.'" Brandt is still looking for the Enormous Pippin.



Dulcet Apple.

Discovered on the farm of L. James Bailey in Wenatchee. The apple has deep red color with a buff to green colored stem cavity and prominent tan or buff colored lenticels. The stem is short and thick. The fruit ripens on the tree in 123 to 130 days. The apples are about 2 ¾ to 3 inches long and about 2 ¾ inches wide. The flesh is creamy white, firm and crisp and sweet. The apple is a good keeper. (modified from US Plant patent 8,187 issued March 30, 1993)

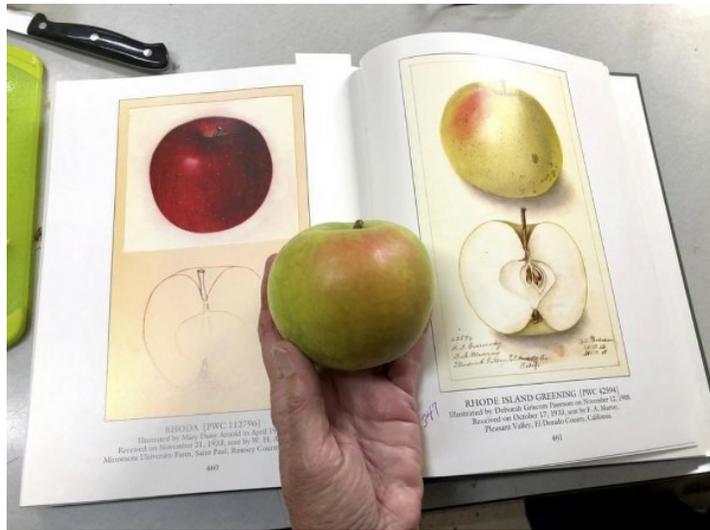
Introduced to OOS by Jim House.

BeeLine Gathering Editor plans to retire

The BeeLine Gathering Editor, Marilyn Couture, has gathered, edited, and posted (with the aid of Patti Gotz) the BeeLine for ten years. She would like to pass the pen (baton) to a WCFS member.

This is an opportunity to report, interpret, create, advise and have fun with orchard growing news.

Let Ron Weston or Marilyn Couture know if you are interested.



In this Oct. 30, 2019, photo, Joanie Cooper, of the Temperate Orchard Conservancy, compares a rare apple to a 1908 watercolor illustration of the same variety in a U.S. Department of Agriculture book, as she works in her lab in Molalla, Oregon. The apple is a Rhode Island Greening, a heritage variety that was once popular but has now become extremely rare in the U.S. Cooper and her colleagues have helped identify many of the 13 “lost” apple varieties that have been re-discovered in recent years by the Lost Apple Project in eastern Washington and northern Idaho. (AP Photo/G. Flaccus)

WCFS Chapter News**Peninsula Fruit Club****Kitsap County**

Fall Fruit Show, Sat., Oct. 26 from 10 am to 4 pm at the West Side Improvement Club, 4109 West E Street, Bremerton.

It was a fun day of fruit tasting and learning about growing fruit. People had a chance to have those mystery apples identified. The I.D. experts, Jean Williams, Lori Brakken, Steve Butler, and Dr. Bob Norton examined the clues to help figure out the variety of apple.

There were samples of hundreds of different varieties of apples, pears, and other fruit, and a large array of different cultivars of fruit on display and available for tasting. People took in a video, browsed information tables, learned about pests, diseases, and mason bees. They found something interesting at the plant sale, and stocked up on supplies for next year. Experts were available to answer questions about varieties and fruit growing.

The generous PFC donated leftovers to OOS for display at their Fruit Show, Nov. 2.

Great Show PFC!

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Olympic Orchard Society

Fall Fruit Show, Sat., Nov. 2, 10:00-3:00

Trinity United Methodist Church, 100 Blake Ave., Sequim

WOW! What a Fruit Show!

The public were in awe, and grateful that we provide the service of I.D. cultivars. Thank you to Lori Brakken, Jean Williams, and Dr. Bob Norton.

Speakers included Paul Gotz, Jim House, Keith Dekker, Dr. Bob Norton.

The tasting teams did double duty. We brought in 14 new members! Thanks to Patti Gotz, Carol House, and Jackie Baker.

The tree selling team under Randy Larson sold almost all the trees.

Thanks to Steve Vause for serving up lunch, and thank you to volunteers for all the tasty snacks. And, to all the Volunteers that showed up for set up and to work the show, and stayed to break down - a sincere and hearty Thank you!

Dungeness Chestnuts had a display. With harvest wrapped up they offered chestnuts for sale on their web site and at farm headquarters. <https://www.dungenesschestnuts.com/>

North Olympic Beekeepers Assn. was represented, with Rex Robertson answering questions about mason bees and demonstrating his mason bee nests.

The Master Gardeners were on hand with information.

OOS Holiday Dinner, Dec. 11, 6pm, St. Andrews Episcopal Church, Port Angeles. Marilyn Couture, Sect.



Susan Savage and Amy Preusser Serving at OOS Fall Fruit Show. Sequim Gazette, Nov. 3, 2019.

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This issue of BeeLine was produced by
Gathering Editor Marilyn Couture,
with input from membership.
Please contribute your articles for our next
Winter issue!

Issue Deadlines:
Winter December 15;
Spring February 15;
Summer May 15;
Fall August 30

Email your articles to: couture222@msn.com
Permission to copy from the Beeline is granted
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Links

Here is a list of sites on the web that may be of interest to you.

Related Organizations

Backyard Fruit Growers
www.sas.upenn.edu/~dailey/byfg.html

California Rare Fruit Growers
www.crfg.org

East of England Apples and Orchards Project
www.applesandorchards.org.uk

Indiana Nut Growers Association
www.nutgrowers.org

Midwest Fruit Explorers
www.midfex.org

North American Fruit Explorers
www.nafex.org

Northern Nut Growers Association
www.northernnutgrowers.org

Oregon Sustainable Agriculture Land Trust
www.osalt.org

Western Cascade Fruit Society
www.wcfs.org

Western Washington Fruit Research Foundation
www.wwfrf.org

Home Orchard Society
www.homeorchardsociety.org/

Seattle Tree Fruit Society
www.seattletreefruitsociety.com/

Seattle Tree Fruit Society—Apple ID program
www.seattletreefruitsociety.com/appleid.php

Fruit Research

National Clonal Germplasm Repository
www.ars-grin.gov/cor

Tree Fruit Research and Extension Center, Washington State.
www.tfrec.wsu.edu

Northwest Berry and Grape Infonet.
berrygrape.oregonstate.edu

Pedigree: A Genetic Resource Inventory System
www.pgris.com

Oregon Department of Agriculture
www.oda.state.or.us

Government Sites

US Dept. of Agriculture
www.usda.gov

USDA Agricultural Research Service
www.ars.usda.gov

Helpful Sites

Orange Pippin
www.orangepippin.com

Kiyokawa Family Orchards
www.mthoodfruit.com

Red Pig Tools
www.redpigtools.com

Friends of Trees
www.friendsoftrees.org

Cornell Gardening Resources
www.gardening.cornell.edu
http://www.fruit.cornell.edu/tree_fruit/GPGeneral.html

The National Arbor Day Foundation
www.arborday.org

UBC Botanical Garden
www.ubcbotanicalgarden.org

The Reckless Gardener
www.recklessgardener.co.uk

Farm & Garden
www.farm-garden.com

SeeMeGarden.com
www.seemegarden.com

GardenGuides.com
www.gardenguides.com

VitiSearch: Helpful Resources about Grapes
www.vitisearch.com

Avant-Gardening: Creative Organic Gardening
www.avant-gardening.com

The Hardy Plant Society of Oregon
www.hardyplantsociety.org

Ask the Berry Man
www.asktheberryman.com

BackyardGardener.com
www.backyardgardener.com

Tom Brown's website
www.applesearch.org

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