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Features:

Foodborne illness most likely to come from fruits and vegetables. *Who knew?*

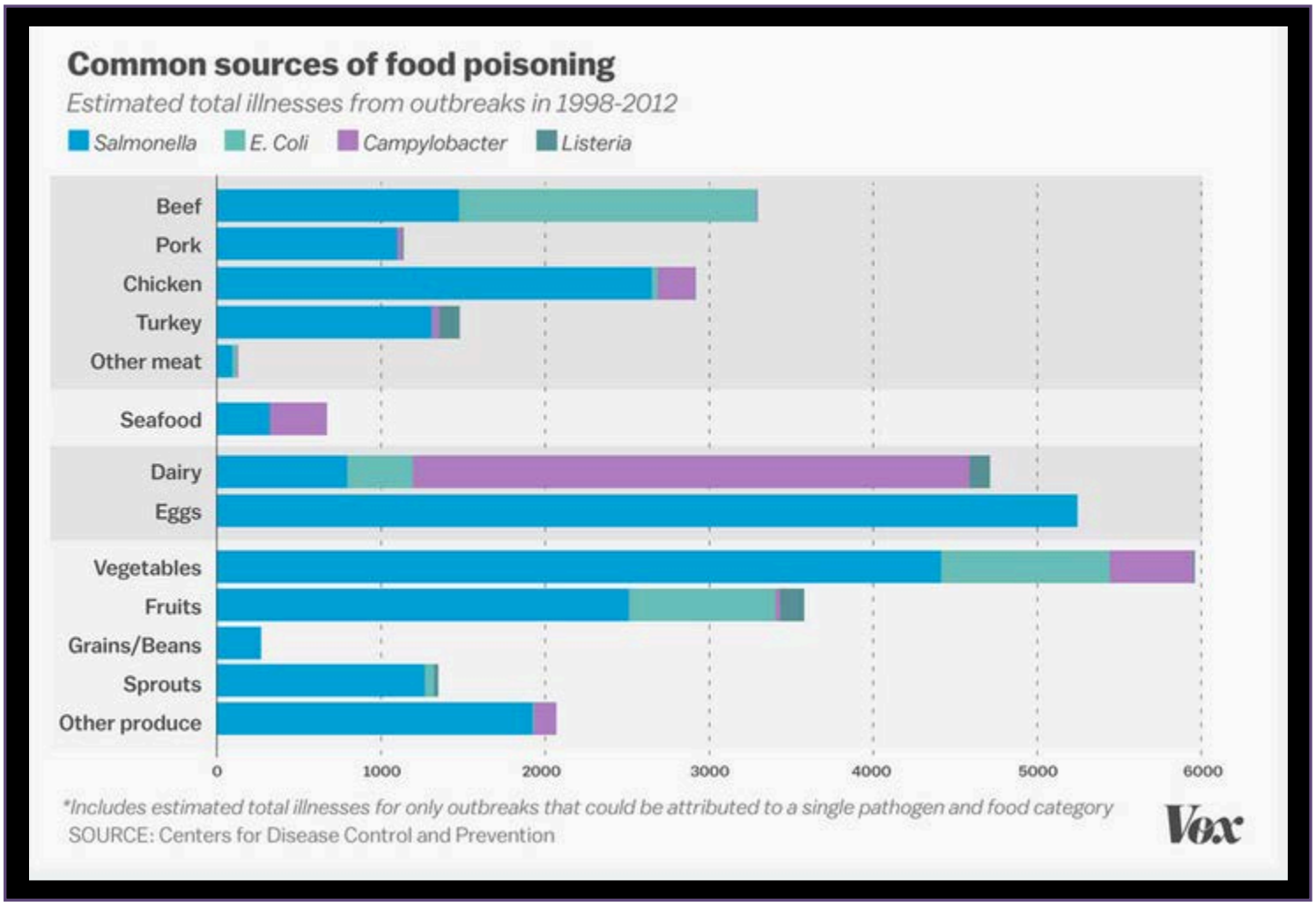
THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

For as long as humankind has been cooking and eating, illnesses from contaminated food has occurred. Our country has several regulatory agencies seeking better ways to avoid or reduce such occurrences, but still, several times each year we hear again of some foodborne contagion sickening and killing.

Most folks assume that meat and poultry products are most susceptible to infectious contamination — but that suspicion would be wrong, according to a recent joint report from the Centers for Disease Control and Prevention (CDC) and the Interagency Food Safety Analytics Collaboration. The agencies analyzed data from nearly 700 outbreaks of foodborne illness caused by either Salmonella, E. coli O157:H7, Campylobacter or Listeria between 1998 and 2012. Surprisingly, vegetables were responsible for the greatest number of illnesses — and most of those were due to Salmonella and E. coli. If the illnesses from fruits were added to those from vegetables, the total substantially outweighed those from meat and poultry. Poultry-sourced illnesses were almost exclusively caused by Salmonella, as were those due to consumption of eggs (see graph below from VOX).

Beef and pork caused illnesses mostly from Salmonella as well, with beef also being a source of E. coli contamination. "As we have written extensively," commented ACSH's Dr. Ruth Kava, "foodborne illness can certainly have serious health consequences, especially for the very young and old, and for those with compromised immune systems. But it's not very hard to prevent these illnesses. The key is to be careful in handling and preparing foods — especially those to be eaten raw. Careful washing of fruits and vegetables, separation of cooked and raw foods, and avoiding consumption of raw eggs and unpasteurized dairy products will go a long way in keeping consumers healthy," she continued.

Foodborne illness... *(continued)*



Original article found at: http://acsh.org/2015/03/foodborne-illness-likely-come-fruits-vegetables-knew/

Non-Crop Host Plants for Spotted Wing Drosophila

Rufus Isaacs; Michigan State University Extension, Department of Entomology

A new online source provided by Oregon State University is now available to the public. This new guide gives various examples of non-crop plants that host the ever-present spotted wing Drosophila (SWD). The guide has information provided through various sources including collections from Michigan, New York, Florida, California, Oregon, Washington, and British Columbia. The guide, entitled "Noncrop Host Plants of Spotted Wing Drosophila in North America", is posted as a free PDF file on the Factsheets page of Michigan State University Spotted Wing Drosophila website.

Noncrop Host Plants of Spotted Wing Drosophila in North America

EM 9113 • April 2015

J. Lee, A. Dreves, R. Isaacs, G. Loeb, H. Thistlewood, and L. Brewer

Spotted wing Drosophila (SWD), *Drosophila suzukii*, is an invasive fly that lays eggs in ripening and ripe berries, and stone fruits. The developing larvae can make the fruit unmarketable, so this pest is a concern to producers, packers, processors, and distributors of these crops.

Landscapes surrounding fruit production fields often include hedgerows, adjacent field margins, and woody or riparian areas with ornamentals, unmanaged shrubs, vines, or other plants that also produce fruits. Noncrop habitats can meet the requirements that favor SWD adults and their natural enemies: food, shelter, shade, and humidity. In addition, many noncrop fruits can support developing larvae of SWD. As populations of SWD build in noncrop hosts, these areas can become "hot spots" from which SWD can move into fields as commercial fruits begin to ripen. In some regions, these plants are important for late season population buildup outside crop fields.

From this publication, commercial and backyard fruit growers and field advisors will learn which plants can serve as alternate egg-laying sites for SWD. This list of noncommercial fruits was developed from multiyear sampling to determine likely noncrop hosts for SWD larvae. Regional differences in the importance of each plant host may occur due to differences in environmental conditions. The list is not exhaustive but includes what is known at this time about plants commonly found in British Columbia, Washington, Oregon, California, Michigan, New York, and Florida. We expect this list to expand as more becomes known about noncrop hosts for SWD.

Thistlewood Lab, Agriculture and Agri-Food Agriculture et Agroalimentaire Canada

Blue elderberry

Amy J. Dreves, © Oregon State University

Cherry laurel

Jana Lee, USDA-ARS Horticultural Crops Research Unit; Amy J. Dreves, Department of Crop and Soil Science, Oregon State University; Rufus Isaacs, Department of Entomology, Michigan State University; Greg Loeb, Department of Entomology, Cornell University; Howard Thistlewood, Pacific Agri-Food Research Centre, Agriculture and Agri-Food Canada; and Linda Brewer, Department of Horticulture, Oregon State University.

Oregon State University OSU Extension Service

Various researchers compiled this information by looking at a variety of fruit in both wild and agricultural habitats. By collecting fruit and rearing out the insects that emerged from the fruit, the researchers were able to see which fruit contained SWD.

This information will be helpful for growers as it displays potential wild plants that host SWD. While there is little information on the effectiveness of removal, this small step could potentially lower the density of SWD in the surrounding crops.

Original Article displayed on: http://msue.anr.msu.edu/news/where_else_do_spotted_wing_drosophila_like_to_feed?utm_source=Fruit+Production+-+MSU+Extension+News+04-21-15&utm_campaign=Fruit+4-21-15&utm_medium=email

Berry Crops and the Winter of 2014-2015

Kathleen Demchak- Penn State Extension

Due to the extreme nature of this past winter, many berry growers are wondering how this may have affected their crops. This article breaks down the possibilities of damage according to plant type.

Strawberries

"I expect that we will see injury in some locations, but not necessarily because of our low winter-time temperatures. Plants should have been protected under snow, straw or row covers by the time the really cold temperatures hit. However, last November we reached some lows in the lower teens and upper single digits during the third week of the month, and many plantings were not yet mulched or covered for the winter at that point. So, some injury could have taken place then especially on exposed sites. You can cut through crowns lengthwise to check for damage. Healthy crowns will be creamy white throughout, while slightly injured crowns will have some brown discoloration, and very severely injured crowns will be dark brown."

Raspberries and Blackberries

"At least partial injury of canes is likely, either from cold or desiccation, since not only was it cold in January and February, it was also very windy. With blackberries, exposed canes are very likely to have been killed from cold temperatures.

It's very difficult to see the symptoms of winter injury in the buds when they are still tightly closed unless you have a microscope. However, you can cut some canes and put them in a vase of water and see whether they leaf out. You can also tell if the canes became desiccated by looking for striations (narrow grooves) in the surface of the cane tips while you are pruning. If you see these, it means that the tissue dried out too much. Of course, you can also check canes for a layer of green tissue under the bark as a sign of life, though color alone is not always a clear indicator as dead canes sometimes retain some green color. However, dead canes often feel lighter, and the cut ends feel totally dry. Live canes contain some moisture that you can usually feel if you place the cut end of the cane against more sensitive skin such as your cheek or lips (assuming they aren't so frozen that you can't feel anything).

This coming summer, if you notice canes failing to leaf out and are wondering whether the problem is winter injury or a disease, remember that if winter injury is the culprit new canes will grow normally, whereas if you have a root rot problem primocane growth will be weak or nonexistent."

Blueberries

"Even though it got cold, it didn't get cold enough to kill canes of most varieties, as blueberries can generally take temperatures down to -20° F or even lower. Injury from desiccation is a concern, however. You may be able to see browning in buds if you cut through them, or as with raspberries and blackberries, you can cut some canes and put them in a vase of water to see whether they bud out. Cane color is a trickier indicator with blueberries than it is with raspberries and blackberries, though moisture and weight can be an indicator of survival if you are sufficiently experienced to be able to tell a difference. A brown or tan color to the wood can be an indication of a disease issue."

Original article displayed on: http://extension.psu.edu/plants/tree-fruit/news/2015/berry-crops-and-the-winter-of-2014-15

What is the Difference Between a Frost and a Freeze?

Mark Longstroth; Michigan State University Extension

Knowing the difference between a frost and a freeze may be beneficial to the crops in which you are growing. In this article, a frost is described as when there is visible frost on plants. A freeze is described as when the air temperature drops below freezing. These terms tend to become interchangeable. For example, sometimes a frost is present when the temperature is above freezing and often we have a freeze without frost being present.

Two major conditions that impact the damaging effects of a freeze are dew point and wind conditions. Dew point measures the absolute amount of water in the air. If dew point is much above freezing then the likeliness of a frost is unlikely. It can also be said then, if the dew point is below freezing then a frost is more likely. Wind conditions alter the probability of frost and freezing based on whether or not there is a cold front. The constant movement of air can cause either a frost or freeze depending on the combination of both dew point and wind conditions.

There are generally two types of freezes, advective or radiation freezes. Advective, or wind freezes, are caused when windy conditions cause the movement of a cold air mass to come into an area with subfreezing temperature. This in turn causes a freeze. Radiation freezes are caused after the passage of a cold front, which precedes a mass of cool dry air. This causes the ground at night to cool which then chills the air above it.

Types of freezes

Radiation Freeze	Advective Freeze
Winds less than 5 MPH	Winds higher than 5 MPH
Clear Sky	May be cloudy
Cold air mass 30 to 200 ft. thick	Cold air mass 450 to 3000 ft. thick
Inversion develops	No inversion
Cold air in low spots	----------
White or black frost damage	----------
Easier to protect	Difficult to protect

Article material originated from:
http://msue.anr.msu.edu/news/what_is_the_difference_between_a_frost_and_a_freeze?utm_source=Fruit+Production+-+MSU+Extension+News+04-21-15&utm_campaign=Fruit+4-21-15&utm_medium=email

Yellow Leaves on High Tunnel Raspberries

Mark Bolda; Strawberries and Caneberries

When adding new high tunnels, temperature variation may affect the plants that are growing within it. This article described how a new tunnel and high temperatures led to a large amount of yellowing on the raspberries within the new tunnel. With one experience listed, it's fairly clear that the leaves are dying from the high temperatures in the newly erected tunnels. The elements nitrogen, phosphorous and potassium are being remobilized from the yellow leaves to newer leaves on the plant, while others, markedly calcium, are left behind or continue to accumulate (look at the large differences between iron and boron in healthy green leaves as compared to yellow leaves). Curiously, copper trends high in both – usually it is seen around 2 or 3 parts per million.

Element	Green Leaves	Yellow Leaves
Nitrogen(%)	3.30	2.34
Phosphorous(%)	0.23	0.10
Potassium(%)	2.06	1.25
Calcium(%)	0.65	1.02
Magnesium(%)	0.29	0.46
Sodium(%)	0.03	0.05
Iron (ppm)	83	165
Boron (ppm)	95	167
Zinc (ppm)	15	24
Copper (ppm)	7.4	8.7
Manganese (ppm)	89	123

Article material and pictures originated from: http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=17368

Americans Are Eating a Lot More Berries. Here's Why.

Josh Barrow; The Upshot; The New York Times

"According to statistics published by the United States Department of Agriculture, per capita consumption of fresh raspberries grew 475 percent from 2000 to 2012, the most recent year for which data are available. Blueberry consumption is up 411 percent, and strawberries are up 60 percent.

But if you compare apples and oranges, you'll find we now eat 9 percent less of each, and 11 percent fewer bananas. The decline in those three mainstays, which still account for 49 percent of the fresh fruit we eat, has made room in our diets for more berries, pineapples (up 99 percent), mangoes (up 42 percent), papayas (up 41 percent), tangerines (up 40 percent), lemons (up 56 percent) and avocados (up 139 percent), which, yes, the agriculture department says are fruit.

Of course, there is the "superfood" factor: Both raspberries and blueberries have been praised for their nutrient value. But Chris Romano, who leads global produce procurement for Whole Foods, attributes the boom in berries largely to taste and availability.

"Techniques in growing raspberries, blueberries and blackberries have gotten much better over the last 15 years," he said. Growers are planting better breeds of berry, with higher sugar content; they're using pruning and growing techniques that extend the season, including growing berries inside greenhouse-like structures called tunnels that retain heat; and most important, they're growing berries in places they didn't used to, where production is possible at different times of year.

Historically, blueberries needed to be grown in regions that get cold weather for part of the year, because rising temperatures bring the plants out of dormancy. But newer "low-chill" blueberry varieties have helped make berries available all year by expanding production to formerly inappropriate areas like coastal California. That helps make more berries available in months like November.

With pineapples and papayas, the story is similarly about improved quality and improved availability throughout the year.

"*Fresh pineapple is pretty much available year round, and that wasn't the case before,*" said Eric Stone, the senior produce merchant at FreshDirect, the New York grocer. He offered particular praise for pineapples currently coming out of Hawaii, and for the champagne mango, from Mexico.

Remember this the next time you hear "local, seasonal" is all the rage. We're in the midst of a berry boom that has been made possible by farmers shipping berries all year, from whatever part of the hemisphere is the best place to produce them at that moment, to wherever consumers feel like having a fruit salad."

http://www.nytimes.com/2014/12/02/upshot/americans-are-eating-a-lot-more-berries-heres-why.html?_r=0&abt=0002&abg=0

Blueberry pollination season: Top 10 things to do now for optimal pollination

Rufus Isaacs; Michigan State University Extension, Department of Entomology

The recent, warm weather and predicted scorching May conditions (86 degrees predicted in Grand Junction, Michigan on Thursday, May 7) predict a super-fast start to bloom this year. It is time again to review blueberry pollination by reading "Invest in pollination for success with highbush blueberries" by Michigan State University Extension.

Here are 10 top important take-home messages from the article.

1. Blueberry pollen is moved by bees, not wind, so high numbers of bees are needed to set a blueberry crop.
2. Cultivars vary in their benefit from getting cross pollen versus self-pollen, so field design and stocking should take account of this.
3. Honey bees, bumble bees and wild bees contribute to pollination.
4. Flowers are receptive to pollen for just a few days. In the hot weather their receptive period is likely to be shorter.
5. Stocking recommendations vary by cultivar from lowest (Rubel at 0.5 hives per acre) to highest (Jersey at 2.5 hives per acre), so adjust by cultivar.
6. Stock with more bees for higher yielding fields and to increase the chance of full pollination.
7. Bumble bee colonies can complement honey bees to improve pollination.
8. Wild bees provide significant pollination in some settings, and can perform when honey bees don't.
9. Conserve wild bees by setting aside some farm habitat for their nesting and food after blueberry bloom.
10. Minimize pesticide risk to bees by avoiding spraying and bee toxic pesticides during bloom, or apply only late in the day, and follow the label restrictions.

Original article posted on: http://msue.anr.msu.edu/news/blueberry_pollination_season_top_10_things_to_do_now

Managing Spotted Wing Drosophila in Your Garden

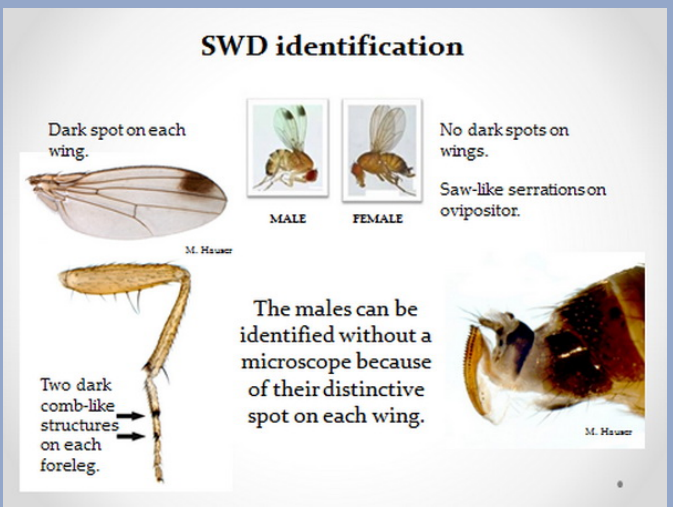
Laura McDermott, Cathy Heidenreich, Juliet Carroll, Michael Helms, Art Agnello and Greg Loeb; Cornell University

Spotted wing Drosophila, or SWD, an invasive species from Asia, has become a highly unfavorable insect in the world of a berry grower. Whether commercial growing or growing for personal gardens, it is important to understand how to control these pests. In an article entitled "How Do I Manage Spotted Wing Drosophila", provided through Cornell University and Extension, various management tools are given for berry growers to use. If used, these tools may help lower the population of SWD that you might have in your garden. While this is a somewhat newer invasive pests, the current research is forming ways to deter this insect.

Some ways to control SWD within your garden include:

- *Excellent sanitation*
- *Canopy and water management*
- *Insecticide treatments*
- *Monitoring SWD with baited traps*
- *Fruit sampling*
- *Cooling berries immediately*
- *Use of insect exclusion netting*

Within the article there is also a list of insecticides that are available to use for treating SWD problems. The list includes the insecticide name, EPA regulation number, active ingredient, efficacy, and the fruit crops labeled for use on.



The original article can be found at the following PDF file through the Cornell website: http://www.fruit.cornell.edu/spottedwing/pdfs/SWDgarden.pdf

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New York Berry News (**NYBN**) is a monthly commercial berry production newsletter provided by Cornell berry team members. It is designed to help promote and strengthen commercial berry crop production in New York State. NYBN is available free of charge in pdf format at: http://www.fruit.cornell.edu/nybn/.

Visit the NYBN web site to view back issues or to subscribe to monthly e-mail notices with table of contents and a link to the most current issue.

More on individual team members and their areas of expertise may be found at: http://www.fruit.cornell.edu/berry/berryteam.htm.

Questions or comments about the New York Berry News?

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