ALASKA PIONEER FRUIT GROWERS NEWSLETTER

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APFG News:

February was our official annual meeting. At both this meeting and again in March we discussed the upcoming shipment of Evans cherries and watched a video on the fruit tree presented by Bob Boyer. What a delight to see the tree covered with blossoms and then literally bowing down under the fruit load later. The video was in French, but we managed to glean a little information with the help of members who spoke a little French (thanks Paul Lariviere!) The tree purportedly yielded 300 pounds of cherries. Evans cherry was found on a farm in Edmonton, but originally came from England at the turn of the century. The buds are good down to –45 F and the tree is good down to –55 F.

The April Apple tree-grafting workshop had a very good turnout. We gained three new members and a few renewals. How did everyone's grafts do? Let me know for the next newsletter!

MAY ORCHARD TOURS

On the 20th of May we will visit Dan Elliot's and Ken Cassity's orchards in Wasilla.

We will start at Dan's place at 1:00 pm. Directions to Dan's ; From Anchorage take the Glenn Hiway to the Parks, turn left onto the Parks Hiway and go about 2.5 miles to Fairview Loop road which is just across Wasilla Creek on the left. Intersection of Parks and Fairview has a small Quik stop type grocery store and Party Time Liquors on the left and Northern Lights Nursery on the right. Turn left off the Parks onto Fairview Loop and go to mile 4.8, the road has two right angle turns in it the first to the left and the second to the right, shortly after the second right angle to the right will be Dan's driveway on the left. Dan will have a sign out front. Dan's phone is 376-5196. He mentioned for parking it might be best if some of us car pooled. If you get to Edlund Rd. you've gone too far.

To get to Ken's place, From Anchorage take the Glenn Hiway to the Parks, left on Parks and go approximately 2.1 miles to Heyer road which is just before Wasilla Creek. Turn right and go to Meadow Rd. which is near the top of steep hill and is the 3rd street on left. Turn left and then take the 1st left which is South Country Rd. go to the end and park in the culdesac. Ken's address is 500 S. Country Rd. The number is on an old Anchorage Times paper box. His number is 376-8475.

Ken will be at Dan's and we can follow him back to his place. If you can't make it to Dan's the tour at Ken's will start around 2:30 pm.

This is the start of our Summer tours, Look for the usual post card throughout the summer for more tours. If you are interested in showing your orchard (and here in Alaska a couple trees can be considered an orchard!) this summer please contact Kevin at 338-6510.

Happy Growing Season and may all your hard work be Fruitful!

Welcome New Members!
Carroll Phillips, Harold & Bobbie Jackson, Alice Brewer, Della Dircks, Kaye Pullen, Kay Shearer, and welcome back Margaret Snider!

Call for Email addresses – we would like to get a list of Email addresses for those of you who have one. Either let Debbie know or Email me at schliesak@gci.net with your name in the text and APFG in the subject heading.

A special THANKS YOU to Lawrence Clark for his donation of $100 to help us publish the APFG Newsletter.

I would like to thank all of you for allowing me the opportunity to edit the newsletter this year, and I would like to remind everyone that this is YOUR newsletter. Please consider helping out by submitting an article – these can be anything; a recipe, a note on how your fruits are doing, a book or website review, or even a paragraph asking for information about something someone else may be able to answer. You can even submit articles from magazines provided permission to reprint is granted from the publisher. Mail it to me, hand it to me at a meeting, or even send it via Email! I will do the rest.
– Tami Schlies

Reprinted with permission from Fruit Growers News, March 2000

Top Six Most Common Mistakes Made When Pruning Fruit Trees

By Caleb Torrice
Cornell Cooperative Extension

These are the most common mistakes made while winter pruning in the orchard.

1. Cutting branches back instead of totally removing them. If you have a large caliper branch in the top of the tree, it needs to be removed. If that large branch is not removed, often it will continue to grow taking nutrients from smaller, lower branches. If a branch is cut back and not removed, it can increase in diameter and stiffen the branch.

2. A little off the top. Remember that we are striving for a Christmas tree shape….a narrow top with a wide bottom. This shape allows for maximum sunlight use. Branches on the top scaffold, if left unchecked, grow vigorously absorbing more sunlight than other lower branches. This leads to shadowing lower branches and over time a mushroom shaped tree or in severe cases, trees with an upside down Christmas tree shape. To avoid this problem, remember to use whole limb replacement on the top scaffold. Keep those top branches young, healthy and productive.

3. Allowing droopy branches to remain in the tree. This is more obvious on tip bearers such as Cortland but often commonplace on

most varieties. We all know that a tree's main goal is to grow towards the sun with vertical branches. We also all know that the best fruit is bore on horizontal branches.

So what is the story on branches growing down? Remember that the tree's hormones and nutrients are flowing through the tree. These are the factors that determine bud development, vigor and even fruit size. When a branch heads south, these necessary components are naturally not abundant in these areas. That is why droopy branches usually have small fruit and the wood doesn't show signs of vigor but is mostly spurs. Remove these droopy branches by cutting back to a horizontal branch. This will allow for larger fruit. I know in tip bearing varieties this is an ongoing battle, however, if droop branches are not removed, over years you can see the decline in productivity, tree health and vigor.

4. Not pruning every year. Let's be honest with ourselves, pruning every year is the best option for maximum tree health and productivity, but is it always feasible? No. Warren Stiles used to tell us that the trees don't always read the books. I interpreted this to mean that you can't always go by the books and often have to use your best judgment.

Helpful hint No. 1: Focus on dwarf trees. This is where our bread is buttered in today's marketplace. Maximizing output per acre. Try to prune every year and at least every other.

Helpful hint No. 2: Don't go chainsaw crazy every four years. If you go into a block that hasn't been pruned recently and go hog wild, you will have an explosion of growth. In my opinion, it's better to cut less more often. Instead of hacking six large branches in one year, take three one year and three in year two. This will help keep your explosive vigor down and allow you to spend half as much time per tree; hopefully, allowing you to move quicker through the block.

5. Leaving branches too low in the tree. This is one of the problems associated with pruning with your wallet. I will prune someone else's orchard better than my own, because I am not counting fruit buds outside of my orchard. Forget about fruit loss and focus on correct pruning principles. You will often makeup for less fruit with larger, cleaner fruit. It's the same principles with these low branches. Remove them now with shears or in August with the mower.

6. Creating walls in the trees. Part of the reason for pruning is to allow for spray penetration. It you have a branch that is creeping into the row and you decide to cut it back instead of totally removing it, don't cut it back to a branch going straight up. I know this sounds like common sense, but I see this on a daily basis. In the winter that branch doesn't look like a large threat for spray penetration, however, after a spring of growth and hundreds of leaves, you have a very dense wall to spray through. Instead, cut to a horizontal branch going left or right. If it has a slight upward direction, don't worry too much. Hopefully your huge apples will bring the branch down to horizontal.

One of the rules in life: For every expert there is an equal and opposite expert. This is very true in pruning. The more people in an orchard, the more theories on how to prune. Remember that there is no correct way to prune, but there are wrong ways. Use the principles you know, and use your best judgement in the case at hand.

Soil Facts

by Tami Schlies

To many people, dirt is dirt, but to those of us who grow things, dirt is a dirty word. The key word for us is soil, and there are many different properties to soil, all of which make our job as growers easier or harder. Soil texture, profile, components, chemistry, and nutrients are a few of the ways we as gardeners can talk about our growing medium, but these may be terms not every gardener is aware of. To better understand how soil works, this article will cover some of the basics of these issues, trying to focus on our needs as fruit growers.

Most plants in Alaska utilize only about the top twelve inches of soil because our soils tend to be so cold. The texture of this soil is very important to promote the best physical and chemical properties for optimum plant growth. Texture determines how much water the soil holds, how easy it is to till, and how well it holds nutrients available for plant use.

There are three size categories is soil texture. Clay is the smallest, silt is medium sized, and sand is the coarsest. In the soil solution, clay is the most chemically active of the three sizes, having a negative charge that bonds with and holds many positive nutrient ions available for plant use. Conversely, sand has little charge and therefore barely aids soil fertility. All soils consist of these three grades in varying ratios, the predominant particles giving the soil its textural designation. For example, clay soils are usually more than 40% clay, loam is an equal mixture of all three size grades, sandy loam has a bit more sand, etc. An easy way to determine ratios in your own garden is to fill a quart jar halfway with garden soil, then fill to the top with water. Cover and shake the jar until it is well mixed, then allow it to settle for twenty four hours. The soil will form into three layers, with sand on the bottom, silt in the middle, and clay on the top.

While soil texture is important to gardeners it cannot be markedly changed without taking drastic measures. Instead, we focus on changing the soil structure – the way in which the particles are assembled. We can change the structure of the soil by cultivating, draining, liming, or adding organic matter. The goal is to get your soil structure to a good, loose, crumbly state that drains well, yet retains enough water for plant use, and that does not clump up or crust over. The easiest way to achieve this is by incorporating organic matter, which we shall discuss next.

Besides the sand, silt, and clay, which are all mineral components, good garden soil also contains organic matter, air, and water. Healthy garden soil is roughly 50% pore space, which can be filled with either air or water. Water is needed not only for plant uptake, but it is also the way in which nutrients are taken into the plant. Air is necessary for respiration in plant roots and for soil microbial activity. Organic matter is partially decomposed plant and animal matter. Physically, organic matter binds mineral particles into larger clusters, making soil loose and easily workable. This increases the amount of large pores in the soil, enabling it to hold more water and air.

Humus, organic material resistant to decay, has the ability to hold great amounts of water and nutrients ready for plant use, even more so than clay, but more importantly it improves the soil structure. Compost is a great source of humus, since most of the degradable organic material has already decomposed. Decomposition is required to release (mineralize) the many nutrients that are held in the organic portion of the soil, so organic fertilizers may release their nutrients more slowly in our cold soils than they do in warmer areas of the country. Soil specialist, Professor Ray Gavlak says

"Typically temperate region soils (and certainly subarctic soils) have more organic matter than soils of tropical climates due to microbial activity stimulated by warmer temperatures. Soil microbes reduce organic matter levels because they are active nearly all 12 months of the year. In our soils, they have only a few months to mineralize organic matter and that typically happens in the very surface region..."

One of the best things you can do for your garden or orchard is do a soil pH test – either at the Cooperative Extension Office, with a kit from the store, or even at some of the local greenhouses. If you buy a home pH test kit, make sure you get one that tests in gradients of point five; 5.5, 6.0, 6.5, 7, and so on. The other test may be cheaper, but can easily be read inaccurately. Soil pH is the measurement of hydrogen ions in the soil, created when water mixes with the minerals in the soil. You may have heard this referred to in terms of acidity versus alkalinity or even sour versus sweet soil. A neutral soil would have a pH of 7, an acidic soil would be less than that and an alkaline soil greater than that. The pH of the soil determines the availability of minerals, affects microbial properties such as decomposition and nitrogen fixation, and affects toxicity levels of such things as aluminum. Most plants prefer a soil pH of around 6.5 because at this level nutrient uptake is at it's maximum for most nutrients.

Preferred pH of commonly grown fruits

apples, gooseberries 5.0-6.5
apricots, grapes 6.0-7.0
cherries, plums, pears 6.0-7.5
strawberries, raspberries 5.0-7.5
blueberries 4.0 – 6.0
currants 5.5-8.0
rhubarb 5.5-7.0
Kiwi 5.5–6.0

Alaskan soils are generally acidic, with a pH of 4 not uncommon, though there are a few areas of the interior with neutral to slightly basic tendencies. Soils can become further acidified by what is called leaching, when base forming minerals are washed away by rain or irrigation. Most commercial fertilizers are also acid forming, and even plants themselves and microbes in the soil acidify the solution by the creation of carbon dioxide during respiration, which combines with water to form carbonic acid. In order to artificially acidify soil, you can add elemental sulfur, sulfuric acid, aluminum sulfate, or ferrous sulfate.

Most people need to raise the pH of their soil, rather than lower it, and that is where the addition of lime becomes important. Liming materials are usually calcium oxides, hydroxides, or carbonates. Dolomitic lime is a mixture of calcium and magnesium, which is desirable if you also need to raise the magnesium levels. Do a soil test before adding lime to determine the amount to add, because adding too much can raise the pH too high and result in deficiencies of iron, manganese, and zinc.

We are all familiar with the three primary nutrients of nitrogen (N), phosphorus (P), and potassium (K). These are the numbers we see on the bags of fertilizer and the nutrients plant need in the greatest amounts. But there are many more nutrients necessary to plants than just these. In fact, there are sixteen known nutrient elements essential to plant growth. Three of them, carbon, oxygen, and hydrogen, are provided by air and water with no intervention on our part. In addition to these, there are the three primary nutrients mentioned earlier, three secondary nutrients, and seven micronutrients. Many nutrients available for plant use are of a positive charge in the soil solution, held for use by the negatively charged clay and organic particles. The few that are negatively charged, such as nitrate, sulfur, and

molybdenum are not held by soil particles and therefore are susceptible to leaching.

Lets start with a few facts on the primary nutrients. Nitrogen is needed in larger amounts than any other element because it is what facilitates the growth of leaves. Too little results in stunted growth and yellowish leaves, too much causes excessive growth and little or no flower and fruit development in fruiting plants. Though the air we breathe is mostly nitrogen, it is not useable in gaseous form to most plants. It is only useable by plants in two forms, either as nitrate or as ammonium. Nitrate is easily leached from soil and is a major cause of ground water pollution. It is also converted to gas in waterlogged soils and lost into the atmosphere. Ammonium is held by organic matter in soil. It is used by soil microbes as a nutrient, and they in turn transform it into nitrate during a process called nitrification. In unfertilized soils, 95% of the nitrogen is held by organic matter. A few plants, such as legumes and alders, do have the capability to transform atmospheric nitrogen to a usable form with the aid of symbiotic microorganisms on their roots. Growing such things as clover around the base of your fruit trees can increase the soil nitrogen levels for your trees to use, as well.

The second primary nutrient, phosphorus, is essential to good root development, flowering, and fruit development. A deficiency may result in red, purple or very dark green leaves and stunted growth. It works in conjunction with magnesium, each increasing the other's plant uptake. PH plays a critical role in the availability of phosphorus: above a 7.5, and calcium binds with it, making both unusable; below 5.2 and aluminum binds it. Phosphorus is of major importance to Alaskans because it has a very slow uptake by plants in cold soils. Not only that, but some soil minerals, especially those in volcanic ash, bond with phosphorus and make it unavailable to plants. Areas of Point McKenzie, the Kenai, and the Susitna Valley are high in volcanic deposits in the soil – the addition of organic matter decreases the ash's ability to bond with the phosphorus and may help with plant uptake, decreasing the need to add large amounts of phosphorus. In the soil system phosphorus is very insoluble, meaning it does not leach, but that it is also not easily available to roots if it is not worked into the root zone. The common fertilizer recommended for Alaska, such as 8-32-16, is high in phosphorus, but over time, phosphorus levels can become excessive at this level. Doing a soil test can be very beneficial and even save you money if you discover you no longer need to use a high phosphorus fertilizer.

The final primary nutrient is potassium, which aids root and stem development, increases the overall vigor and disease resistance of plants, and increases the quality of yields by aiding the plant's production of sugars, starches, and oils. It helps reduce water loss through the leaves, helping plants endure drought, and acts as an antidote to excess nitrogen. A lack is indicated by an increased susceptibility to disease, thin skinned, small fruit, and weak stems. Excess potassium causes course, poorly textured fruit and lowered ability to absorb calcium and magnesium. The most limiting factor for plant uptake of potassium is lack of moisture, since it is not highly effected by pH. We add potassium in our fertilizers because though it is held in soil in great amounts as part of the mineral structure, it is released too slowly to accommodate plant growth.

Like potassium, the most limiting factor in plant use of the secondary nutrient calcium is lack of soil moisture. Such things as blossom end rot in tomatoes, tip burn in strawberries, and bitter pit in apples is caused by lack of calcium due to moisture deficiency in the soil. Keep those plants evenly watered! In the soil system, calcium

is the dominant ion and acts as a buffer to pH changes. It is usually present in ample amounts, except in very acid soils, and it is also present in most liming materials that we add to our soils. It is necessary for cell wall structure.

Magnesium, the next secondary nutrient, also acts as a pH buffer in the soil solution, being least available in acidic soil. It is used for plant photosynthesis. Though phosphorus works with magnesium, calcium and potassium compete with it for plant uptake, so liming materials that are all calcium and no magnesium may cause an insufficiency in the soil solution. A good way to add magnesium to the soil is with dolomitic lime, Epsom salts (magnesium sulfate,) as sulfur is also limited in cold soils, or by MagAmp, which adds lots of phosphorus along with the other primary nutrients. Magnesium is in good supply in soils in Alaska's interior, but forage crops in Point McKenzie have benefited from its addition. Lack of magnesium causes small, poor quality fruit, premature fruit drop, and yellow leaves while the veins are still green.

The last secondary nutrient is sulfur, which is also used as a soil acidifier. Most sulfur is tied up in the soil organic matter and it's release is related to decomposition and rainfall. Like nitrogen it is very water soluble, susceptible to leaching, and a lack of it shows up in plants very much like a nitrogen deficiency. Here in Alaska, plant uptake of sulfur can be affected by our cold soils, but care must be taken in already acidic conditions, as an excess of sulfur will burn plants because it lowers pH.

Micronutrients are called that because they are needed in such small amounts by plants. Not all the functions of micronutrients in plant growth is yet understood, but they are very necessary to plant growth. The most limiting factor to micronutrients is not the quantity available in the soil, but soil pH. If plants show symptoms of deficiency in these nutrients, simply adding micronutrients to the soil will not suffice, since the new nutrients will also be bound and made unusable under high pH levels. If for some reason it is impossible to lower an alkaline soil's pH, chelated micronutrients can be used, which is a form more readily useable by plants, or a foliar spray of the nutrients can be applied. Most micronutrients are held in the organic matter of the soil.

Four of the seven micronutrients, manganese, zinc, iron, and copper, become severely unavailable to plants as the pH rises. Manganese deficiency shows up in plants as a mottled chlorosis of the leaves and stunted growth. An excess can cause small dead areas with yellow borders in the leaves. It is highly affected by the water content of the soil, and can easily reach toxic levels in improperly drained, water logged soils. Zinc is not only deficient in soils with a high pH but also if phosphorus levels are too high. A need for zinc makes plants have small, thin yellow leaves with green veins and also results in low crop yields. Iron is highly present in most soils, and a lack in plants shows up as a yellowing of the leaves while the veins remain green. Overliming soil to a pH above 7.5 may result in iron unavailability. Copper is so tightly bound in organic matter that it is less available to plants the higher the levels of organic matter (yes, you CAN have too much organic matter!) as well as high pH. A lack results in multiple budding, gum pockets, and pale young leaves with brown tips. Excess stunts plant roots and prevents the uptake of iron.

Molybdenum behaves differently from other micronutrients because it, like nitrate, holds a negative charge that the soil repels rather than holds. It is most likely to be deficient in acidic soils, particularly sandy ones, and it is easily leached like nitrogen. It is a micronutrient we in Alaska need be concerned with, especially if we are

growing crucifers, as a lack results in what is called whiptail. It is also essential to the nitrogen fixing abilities of legumes. In other plants it may result in yellow new leaves with green veins. According to Ray Gavlak, "Mo deficiency in trees (perennials) should occur much less frequently than in some of the cole crops which actually are the only crops on which the deficiency symptoms have been observed in the Matanuska Valley." Do not attempt to correct a molybdenum deficiency in your soil without professional help, for it is easy to overdo the amount and ruin the soil. Ray Gavlak of the Palmer Re

Chlorine is rarely deficient in soils, especially if you water with chlorinated water. In fact there is more of a problem with excess chlorine. Little is known about the function of chlorine in plant development, but it likely aids in a plant's cold and drought tolerance.

The final micronutrient to discuss is boron, which is critical for the meristematic tissue in fruit trees – the flower buds, root tips and shoot tips where active cell division occurs. It can be insufficient in soils around the state, and also affects the growth of vegetables such as beets, cabbage, carrots, and celery. A lack can cause small, twisted leaves, heart rot, corkiness, and multiple buds. In excess, boron may cause plant leaves to turn a yellowish red. However, the difference between deficient and toxic levels in the soil is very fine, so do not add boron without a soil test. Strawberries in particular are very sensitive to excess boron. As a molecule, boron does not hold either a positive or a negative charge, so it is only lightly held in the soil and is easily leached. It is also less available to plants as the pH goes above 6.5.

This is by no means a complete report on all the things there is to know about soil. Hopefully this will help people understand soil and the terminology used to discuss it. For further reading, I suggest starting by picking up some of the soil publications at your Cooperative Extension office.

Sources:

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Falen (Johnson), C.L., *Organic Fertilizers*, Crop Production and Management Series, Alaska Cooperative Extension

Johnson, C.L., *Soil Fundamentals*, Crop Production and Management Series, Alaska Cooperative Extension

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Gavlak, Ray, Palmer Research Center

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The Big Book of Gardening Skills, Garden Way Publishing, 1993

Rodale's Garden Answers, Rodale Press, 1995

Baldwin, Keith, "Improving Clay Soils", *Kitchen Gardener*, April/May 2000, p.22-24

Insect Controls - selected and submitted by Paul Lariviere from an article in **Pomona** vol. XXXII no. 4 by S. Clark

INSECT KILLING PLANTS:
*Nicotiana is by far my first choice for the control of all chewing and sucking insects. In the same family as tobacco, is an annual in northern climates and a perennial in southern ones (get the non-hybridized type, which grows to height of about 3' with white trumpet shaped flowers.) It will reseed itself aggressively – insects love it and it makes them very sick, but it doesn't seem to affect the birds who then eat them.

INSECT TRAPS:
*Molasses jug works very well and doesn't kill bees. Take a gallon plastic jug with a carry handle. Leave the top on and cut a 2"-3" hole in one side near the top. Fill 1/3 full of a solution of 1/4 cup vinegar and 1/4 cup molasses to each half gallon of water. Hang one in each tree and keep the fluid level up by adding water. When it gets really gucky with dead bugs, dump, rinse, and refill.

INSECT BARRIERS:
*Fish oil based spray is the best growing season spray, as it washes off easily and becomes a fertilizer. It tends to repel some insects, but it is best in suffocating aphids without suffocating the trees. I'm told it works for other bad bugs, but I use it mostly for aphids when the insect predators can't control them.

*White latex paint – exterior flat, with a copper or zinc fungicide added – is good for two things: suffocating bad bugs and stopping sun scald. It needs to be applied to the trunk of fruit trees every two summers. Summer application will allow beneficials to lay eggs on the tree in the fall. **Note: do not use oil based paints or varnish, as they make the tree sick.**

APPROVED ORGANIC CHEMICALS:
*Sulfur dust and solution do kill aphids and soft bodied larvae, but can't be used in hot, dry summers, as they burn leaves. Sulfur preparations are best used in damp spring.
*Dish soap solution works for aphids and soft bodied larvae as it cuts the coating on their outsides and they desiccate. It's also harmless if used sparingly and can even act as a fertilizer. [APFG editor's note – do not use antibacterial soaps!]

MANUAL REMOVAL OF INSECTS:
*Vacuum sweepers work great to suck everything off plants, but they don't work on flying insects which escape when disturbed. Aphids, larvae, and caterpillars don't escape, however. **Caution: vacuum sweepers also suck off new leaves, so use only on tough, established leaves and use low sweeper power.**
*Hand-picking when you see bad bugs stops them. I like to squash them, but for the squeamish, a bucket of water with vinegar in it – 1 c. vinegar to 1/2 gallon of water [or a few squirts of dish soap in water, which also works well – Ed.] is a good eliminator. Just drop the bad bugs in it. Dump it down the toilet or in the compost pile when it gets too thick.

Book reviews

Publication Review by Tami Schlies

The Oregon State University has a very good 23 page publication titled *Growing Kiwifruit* (publication PNW 507) which gives step by step details on soil preferences, fertilization, irrigation, trellising options, thinning, harvesting, and storing kiwi. They use "fuzzy" kiwifruit studies as a basis, but do include sections on Hardy Kiwi, Kolomikta, and Silver Vine Kiwi as well, and say the vine growth and fruiting habit are the same unless otherwise noted. I found it to be well written and detailed, with good illustrations. It is not too technical for those of us who are beginners, but not so vague that it was worthless. It has separate sections on Establishing Your Kiwifruit Vineyard, Maintaining Your Kiwifruit Vineyard, and Harvest, Handling, and Storage of Kiwifruit so referencing is easy if you have specific questions.
You can get a copy in PDF format for free at their website http://eesc.orst.edu or you can order a hard copy from them for $2.50 at:

Publication Orders
Extension & Station Communications
Oregon State University
422 Kerr Administration
Corvallis, OR 97331-2119

Book Review by Kevin Irvin

Tree Fruit PHYSIOLOGY:
Growth & Development
Washington State University Shortcourse
Proceedings

Published by; Good Fruit Grower
Yakima, Washington
ISBN 0-9630659-6-3

I found this book at Amazon.com searching for any book on fruit growing that might be of interest to me. To be honest I wasn't sure what I was going to get when I ordered it. What I found was an excellent book packed with information, while some of it is technical in nature it is mostly written where anyone can understand it.

It's broken into 4 parts, Part 1: Physiology and Regulation of Tree Fruit Growth and Development, Part 2: Regulation of Vegetative Growth and Development, Part 3: Regulation of Reproductive Growth and Development, Part 4: Regulation of Fruit Quality.

What I like about the book most is parts 3 and 4. part 3 has 4 chapters; Flower Development, Fruit Set, Fruit Development and Fruit Maturity and Ripening.

There are 5 terms used to describe pollination requirements: Parthenocarpic; requires no pollination, Self-fruitful; capable of setting a crop following self pollination, Self-unfruitful; requires cross pollination for a crop to set, Triploid; lacking viable pollen, and Incompatible; having viable pollen but incapable of setting fruit when cross pollinated.

It was interesting to me to read about the triploid, as we have all heard about this as a variety having another gene than most and that it is usually incompatible at some point in time after grafting (spits the graft) now I know it to also be lacking viable pollen!

What I don't know is what varieties we grow here in Alaska that are triploids.

This book is full of charts and graphs related to the subject matter and in the Fruit Development chapter has a good graphics showing the differences of the three types of fruits; Berry (tomato), Drupe (peach), Pome (apple).

Did you ever wonder what determines final fruit size? There is a good section on this. The most important factor being Genetics! Within cultivars the most important being climate. Seed number comes in third hence pollination. Fruit density is also a crucial factor, as fruit density increases, the ratio of leaves to fruits decreases, resulting in less supply of photosynthate per fruit. Maximum returns therefore are obtained when the leaf/fruit ratio is optimum. However this optimum can only be established by experience.

Of particular interest was What determines fruit shape? Cultivar plays the most important role in this. But what was interesting was the graphics showing the fruit shape of Delicious apple grown in South Carolina, Michigan and Wenatchee, Washington. This (diagrammatic) of the same apple in three distinctly different parts of the country showed distinctly different fruit shape!

Most of us are familiar with sunscald here in Alaska where our trees are damaged by late winter sun bearing down on the limbs effectively killing limbs or in some cases the whole tree. Did you know there is also a temperature related disorder called 'delayed sunscald'. This occurs to the fruit where initial symptoms are minimal and not easily recognized. After storage, the sunscalded areas senesce and turn brown, rendering fruit unsaleable (except for juice!). Red cultivars usually have little or no problem with this disorder.

Another interesting thing is on watercore, again most of us are familiar with this and if you grow Chinese Golden Early you are very familiar with it. Watercore can also be heat induced. In contrast to maturity related watercore (the form we are familiar with), heat-induced watercore occurs as a glassy appearance due to the flooded intercellular spaces caused by heat damage to cell membranes, usually near the surface of the fruit. I don't think we will ever see heat induced watercore as a problem here in Alaska but it was interesting none the less.

The section on tree vigor talks about how vigorous vegetative growth reduces flower bud formation. 1)Hormones, 2) Shading and flower bud quality, and 3) Apical dominance. Vigorous vegetative growth reduces light penetration into the interior of the tree. At moderate levels of reduced light, spurs become weak, flower bud size is reduced, fruit set is decreased, and fruit quality declines. Under high vigor conditions, it is likely that no flower buds will be formed in the interior, and spurs may actually die.

Another interesting topic which most of us have never considered is Root Pruning. This is an area I have undertaken (as most of you know I grow most of my trees at present in containers) and is something I've done out of need to keep roots from becoming pot bound not realizing that studies have been done and that commercial use of root pruning has increased dramatically in recent years. Affects of root pruning (besides the obvious for container grown trees) include a significant reduction in overall pruning of the branches as well as improved light penetration into the lower canopy. Yield of large fruited cultivars generally has not been influenced, although small fruited cultivars may have reduced yields in some years. Fruit size has generally been reduced, although fruit quality characteristics such as color, firmness, and soluble solids have been

increased, and preharvest drop and cork spot reduced by root pruning.

This book has been a wealth of information to me and has answered many questions I had on various subjects. It's very easy to read and understand and I am sure will answer most of your questions regarding fruit set, pollination etc. that we all have wondered and talked about at various times. While some areas are somewhat technical in nature it is easily overcome with the further discussion in the various chapters. There is a good Glossary at the back to explain the different terms. Granted the book talks about mostly varieties we do not grow here in Alaska, but the basics of the book are applied to all cultivars and varieties of the fruits we grow here. I highly recommend this book and if you aren't connected to the web I am sure your local book store can order this for you. The exact price I paid I don't remember but it was less than $20.00

Featured Fruit

okay, it's not a fruit, but it's interesting!

Spruce Tips

White Spruce is found on well drained soil on south facing gentle slopes and along the edges of rivers and lakes. Black Spruce grows on north facing slopes and in lowlands that are underlain by permafrost. Sitka Spruce grows in coastal areas. Collect the new, bright green, soft growth on the tips of well established tree branches in late spring. Test for juiciness by pinching them – there is only about a three week span when the needles are at their best. They can stored in the refrigerator in an open container or frozen for later use. Spruce tip tea is a nice spring tonic when combined with honey, a few whole cloves, nutmeg, grated orange peel, and stirred with a cinnamon stick.

Spruce tip jelly (approximately 5 cups)
9 cups cleaned spruce tips (remove brown bud hulls)
4 cups sugar
1 package powdered pectin

Place spruce tips in a large pan and fill to about an inch below the spruce tips. Cover and boil for one hour. Reduce heat and simmer for 3 more hours. Scoop out spruce tips, cool, and strain remaining juice through a jelly bag. Place 3 cups of juice in a saucepan and add the pectin, stirring until dissolved. Heat over high heat until it holds a full rolling boil while stirring. Add sugar all at once and bring it back up to a boil for about one minute stirring constantly. Remove from heat, skim off foam, and pour jelly into sterilized jelly jars, leaving 1/4 inch head space. Wipe the mouths of the jars before sealing with canning lids, then process in a boiling water canner for 5 minutes.