Fruit Tree Care

Tips and Techniques for Promoting and Maintaining Tree Health



The health of plants is directly dependant on the health of the soil!

- The soil is a living, breathing ecosystem, made up of:
- Air ,Water & Minerals
- Plants & plant parts alive & dead/decomposing
- Animals vertebrates & invertebrates – alive & dead/decomposing
- Fungi & bacteria alive & dead/decomposing



Tilling the soil disrupts this ecosystem and damages plant roots!

How Plant Roots Grow

- The small feeder roots constitute the major portion of the root system's surface area.
- Feeder roots are located throughout the entire area under the canopy of a tree. As much as 50 percent of the root system grows beyond the drip line and may extend as far as two to three times the height of the tree.
- A Trees feeder roots grow out from large woody roots and usually grow up toward the soil surface. At the surface, feeder roots mix with lawn and shrub roots and compete for the water, oxygen and minerals that are more abundant near the surface.



Proper Soil Structure

- Soils with good soil structure contain 50% solid and 50% pore space.
- The pore space will have half of the area filled with water and the other half with air.
- Saturated soils have no air as all pore spaces are filled with water.
- The proper balance of water and air in a soil is critical to healthy root and plant growth and to life in the soil.



<u>SOIL</u>

Percolation / Drainage:

The movement of water vertically into the soil. A slope does not ensure good drainage. Soil amendments <u>do not</u> improve percolation or drainage!



• Percolation test:

Dig a hole 2-3 feet deep and fill the hole with water twice. Time how long it takes for the water to drain completely away after the 2nd filling. If it takes longer than 12 hours to drain, the soil has poor drainage and the drainage should be corrected.

Alkaline Soils

 Besides affecting life in the soil, Alkaline soils have three problems that can result in poor plant growth:

excessive salts

• A soil may be rich in salts because the parent rock from which it was formed contains salts. Sea water is another source of salts in low-lying areas along the coast. A very common source of salts in irrigated soils is the irrigation water itself. Most irrigation water contains some salts. **Most alkaline soils have problems with excessive salt accumulation due to low rainfall in the area as they are not leached from the soil.**

– soils which "seal off"

• Soils with excessive sodium can break down soil aggregates and result in a dispersed, sealed-off soil surface.

high pH which ties up certain nutrients

Reclaiming Salty Soils

- Mulches on the surface slow upward evaporation which can aid in reducing the surface salts. As organic mulches decompose, they form humic acid which helps to lower the soil pH, therefore making salts more soluable.
- Leaching
 - Soil is flooded with water and the salts are leached through the root zone. This is only
 practical if water low in salt is available & the soil drainage is moderate to fast.
 Unfortunately, most saline soils are clay-like and have poor drainage.
 - For leaching, 12" of water is needed to remove about 70-80% of the salt in the top 12" of soil.
- Gypsum CaSO₄
 - Gypsum works like this: $CaSO_4 + H_2O + 2Na^+ = Ca^{++} + Na_2SO_4 + H_2O$
 - gypsum will slowly replace the sodium and over time will improve soil structure - the calcium cations bond together soil particles into larger aggregates.
 - the sodium sulfate is now more easily leached from the soil.





Liquid "Gypsum" and "Liquid Thrive"



- Liquid "Gypsum" and "Liquid Thrive" contains a high level of soluble calcium which displaces the sodium. This then creates pore spaces in the soil. The effectiveness of the calcium is compounded by the use of a polyacrylamide (PAM) that attaches to the soil particle and remains in the soil for years, helping the soil structure to resist collapsing. The effect of the PAM is cumulative and long lasting.
- Benefits:
- Improves clay soils by displacing sodium immediately.
- Releases salts, lowering soil EC
- Improves soil drainage
- Reduces crusting and improves infiltration of water and nutrients
- 32 oz. = 200 lbs. dry gypsum

Soil Amendments and Mulches

Amendments are mixed into the soil. Mulches are laid on top of the soil.

• Organic and Inorganic



- Organic mulches are preferred. As they decompose they improve the soil ecosystem.
- Organic soil amendments are not recommended when planting trees. AT Best, they do no good, and at worst they impair the development of roots into the native soil as well as make drainage issues worse.
- If soil amendments are used, inorganic amendments are preferred. These include gypsum, soil acidifiers (such as soil sulfur) and starter fertilizers.





The Organic Component

- Organic matter is an important soil component because it:
- a) holds soil particles together and stabilizes the soil, thus reducing the risk of erosion;
- b) aids crop growth by modifying soil structure and improving the soil's ability to store and transmit air and water;
- c) stores and supplies many nutrients needed for the growth of plants and soil organisms;
- d) prevents or minimizes soil compaction;
- e) retains carbon from the atmosphere;
- f) reduces the negative environmental effects of pesticides, heavy metals, and many other pollutants;
- g) can affect soil pH, making a soil more acidic or alkaline. is responsible for most of the soil N, 5-60% of the soil P, up to 80% of the soil S, and a large portion of the B, Mo, and K.

The Organic Component

- Soil organic matter is in a constant state of flux, decomposing and being added to the soil by natural and human processes.
- In order to maintain the benefits of the soil organic materials and the nutrient cycling system, the rate of addition from plant and animal residues and manures must equal the rate of decomposition.
- Soil organic matter (SOM) includes primary components that are inherited from plant and animal residues entering the soil. These primary components may be dead plants, dropped leaves and stems of plants, composts, manures, dead animals or animal products.
- Primary components are relatively easily decomposed by microorganisms and they persist in soil for a brief time (e.g. several months or years). They make about 20-30% of total SOM.
- Primary components can be classified either as mulches or soil amendments.

Organic Mulches

- Organic material which falls or is applied to the surface of the soil and decomposes is all considered organic mulch.
- There, organisms feed on them and mix the organic material with the upper soil layers; these organic compounds become part of the soil formation process, ultimately shaping the type of soil formed.
- Mulches gradually incorporate into the soil profile from the top down. Applying organic mulches to the entire surface of a soil can affect the soil in the entire growing environment.
- Mulches can also help to moderate the soil environment by affecting soil surface temperature and moisture level.





Mulches

- Mulching a large portion of the feeder root zone is one of the most beneficial things you can do for your trees.
- Mulch should be at least 2 to 3 inches deep and should not touch the trunk of the tree or plant. It should extend beyond the drip line.
- Mulch will decompose and needs to be reapplied at least annually.





Organic Amendments

- Animals and micro-organisms mix soils and organic matter to form burrows and pores allowing moisture and gases to seep into deeper layers.
- Humans can also mix the different soil layers, restarting the soil formation process as less-weathered material is mixed with and diluting the more developed upper layers.
- Organic amendments only affect the soil environment in the area of the soil that they are mixed. To be beneficial to plant growth, amendments must be mixed into a large enough area to support a substantial portion of the root system of the mature plant or plants.
- Turning or mixing soil can disrupt the soil ecosystem and have detrimental effects on the organisms living in the soil.
- Organic amendments are only recommended or useful when preparing an area for planting annuals and small perennials.

Organic Amendments

Mixing organic amendments into planting holes for trees and shrubs is generally <u>not</u> recommended or beneficial.

- At best, these amendments do no good as the root system on healthy plants will develop well beyond the amended planting hole.
- At worst, amendments in a planting hole can:
 - Restrict or inhibit the development of roots into the non-amended "native" soil.
 - Restrict the movement of water into the non-amended soil, forming a perched water table and causing the soil in the planting hole to become saturated and soggy.
 - Will decompose over time, causing the amended soil to compact and the crown of the plant to settle below surface of the non-amended soil. This settling frequently causes crown rot and can kill the plant.



Two Rules for Adding Soil Organic Matter

1. Use a lot.

- Recommendations for mulches are to keep 2-4 inches of SOM on the surface of the soil across the entire planting area or across a significant portion of the plants feeder root zone.
- Recommendations for soil amendments are to amend the mineral soil by 20-30%.

2. Keep doing it.

• Soil organic matter decomposes over time and as it decomposes the benefits are lost.

Planting in Containers

- All container soils compact over time and need to be replenished. Always add fresh soil to the bottom of the root ball, never on top of the original soil.
- Use container or potting soils that are low in organic material or that have organics that decompose slowly to reduce the frequency of repotting.
- Container soils are generally sterile and plant health can benefit from the addition of mychorizzae or other beneficial soil organisms to the growing medium.
- Container soils leach nutrients more rapidly than soils in the ground and must be watered more frequently due to the limited root area of the container.
- All growing containers MUST have drainage holes to provide adequate water drainage and aeration.

Container Soils

- Potting or container soils are mixtures of organic and inorganic components designed to provide optimum water, air and nutrients for plant root growth.
- Primarily organic soils, container soils are subject to the same processes of decomposition and compaction as inground soils.
- Container soils high in wood and bark products decompose more quickly than those with a higher mineral content .
- Container soils should be considered as temporary and need to be refreshed as they decompose and compact.
- Always add fresh soil to the bottom of a root ball and never bury the crown of a plant by adding more soil to the top of a potted plant unless the roots of the plant are exposed.





Container Soils

- Commercially available "cactus soils" are low in organic materials. They
 decompose less and they decompose more slowly than soils with a high
 wood and bark content.
- Mix cactus soil 50-50 with a potting soil that has rice hulls (which decompose much more slowly than wood and bark products) and organic nutrients, such as Kellogg's 'Patio Plus', for a long lasting container soil.



Mycorrhiza

- Mycorrhiza have formed associations with plant roots for over 400 million years.
- Mycorrhiza are present in 92% of plant families (80% of species).
- Present in most undisturbed soils, mycorrhiza may be missing from areas where the top layers of soil have been removed, where soils have been compacted, where fungicides or excess fertilizers have been applied or in container (soilless) soil mixes.
- Mycorrhiza MUST come into direct contact with a plant's root to form a symbiotic association with the plant!

Types of Mycorrhiza symbiotic Fungi:

- Ectotrophic fungal threads (mycelium) grow into root from soil and grow between the root cells. They take up nutrients from the soil and deposit them directly in the root.
- Endotrophic same except fungal threads penetrate directly into the cell itself. Upon death of fungal threads, nutrients are deposited right in the cell protoplasm.

Benefits of Mycorrhiza:

- Enhanced plant efficiency in absorbing water and nutrients (especially phosphorous) from the soil.
- Reduces fertility and irrigation requirements.
- Enhances plant health, vigor and drought resistance and minimizes stress.
- Increased pathogen resistance/protection.
- Enhances seedling growth, rooting of cuttings, and plant transplant establishment.





Planting in the Ground

Little pruning is done during the 1st year. The more branches that are left, the more leaves for the tree to produce food to grow.

DO NOT add soil amendments when planting trees! These do no good in the long run and can deter root development into the native soil. They can also make drainage problems worse!



Where materials used to guy or stake trees comes into contact with the bark, the material should be at least 1" wide.

Never leave stakes tied tightly to the trunk. Instead place stakes away from the tree trunk and tie the tree loosely in 2 or 3 opposing directions if necessary to keep the tree upright.

Mulching the soil surface with an organic mulch is one of the BEST things you can do for your trees. Do not place mulch directly against the trunk of the tree.

Tree Roots



A plants root system has three primary functions: anchorage, food storage and absorption. The root hairs or <u>Feeder Roots</u> are the roots which function to absorb water and nutrients.

A healthy plant has feeder roots which extend two to three times the height of the plant in radius and extend down into the soil 1-3 feet. 90% of all tree roots are within the top three feet of soil!

Watering

Watering There are many ways to water fruit trees. The method you choose will depend on where and how your trees are growing. It is important to note that citrus feeder roots extend beyond the drip line. Emitter Container Drip hose MIL BROOM Drip line Water Water here here Emitte Basin Drip hose Emitter

 The trees age and size as well as the soil, climate, season and other factors affect watering. There are three key principles to proper watering.

KEY TO PROPER WATERING #1

Water the proper area – the Feeder Root Zone!

Water near the trunk or stem on newly planted plants so that you wet the original root ball.

Water at the dripline **and beyond** on plants which are established in the ground. (The plant may take from a few weeks to a one year or more to become established depending on the type and size of the plant, the time of year that it was planted, soil conditions, cultural practices and other variables.)





Water further away from the trunk or stem as time progresses and as the plant grows larger in diameter.

Depth of Water Extraction by Roots

- Most water is taken up by roots from the top 12" of soil (40% 70% or more).
- Up to 90% of the roots that take up water and nutrients are located in the top 36" of soil.
- Watering methods can determine root depth:
 - Light, shallow watering encourages shallow roots. This results in plants that dry out easily and can blow over in storms.
 - Deep, infrequent watering is best to encourage roots to penetrate deeply in the soil.



KEY TO PROPER WATERING #2

Water with sufficient amount of water – enough to thoroughly wet the entire depth of the Feeder Root Zone.

1" of water penetrates the ground 1' in sandy soil, it takes 2" of water to penetrate the ground in clay soil.

90% of feeder roots are found in the top 3' of soil! (70% are in the top 1' of soil.)

- Water to an average depth of 1' to 3' at each watering for plants that have been established in the ground. Smaller plants generally have shallower root systems than larger plants. As a general rule, water to a depth of 6" to 1 foot for plants 1' or less in height, to a depth of 2 foot for plants 1' to 4-5 feet in height and to a depth of 3' for plants larger than 5 feet in height.
- For plants in containers, water with enough water to leach excess salts out of the container and to thoroughly wet the entire root ball at each watering.

How water disperses in the soil

- The wetting patterns of irrigation water in clayey, loamy, and sandy soils. Clay Sand Loam D emitter or emitter or dripper dripper lateral wetted zone wetted zone Water high discharge high discharge Water applied to applied wetted zone sandy soils low discharge to clay or or soils low organic in organic wetted zone soils low discharge materials
- Soil texture and structure directly affects the movement of water through the soil. Water spreads out more horizontally when traveling through a soil higher in clay or organic components and travels more vertically though a soil higher in sand or lower in organic materials.

KEY TO PROPER WATERING #3

Water at the correct interval – often enough to keep the plant from wilting, but infrequently enough to allow air to penetrate the soil. Roots can drown if the soil is kept constantly wet!

Watering frequency will vary with the time of year, location, size of the plants, soil, weather conditions and many other variables.

On average:

Water new plants in the ground 1-2 times per week.

Water older established plants in the ground 1 time per week to 1 time per month depending on the variables.

Water plants in containers 1-3 times per week.

There are <u>very few</u> exceptions where plants should be watered every day! Watering too frequently will exclude oxygen from the soil and cause roots to drown as well as promote diseases!

Soils and Plant Nutrition

- There are 17 elements that plants need in order to successfully grow and complete their life cycle. These elements are called the "Essential Elements".
- 14 of the elements are minerals taken in by roots from the soil.
- These essential elements are broken down into two categories: macro elements and micro elements.
- The macro elements that are minerals taken in by roots from the soil are nitrogen, phosphorus, potassium, calcium*, magnesium*, and sulfur*.
- The micro elements are Boron, Zinc, Manganese, Chlorine, Iron, Molybdenum, and Copper and Nickel.
- The availability of these nutrients for plants to absorb from the soil is affected by the soil pH and the microorganisms which live in the soil.

Types of Fertilizers

- Organic Most rely on soil organisms to convert them to nutrients which are available for absorption by plant roots. Cool or cold soil can affect nutrient availability.
- Conventional ie. Synthetic
 - Fast release
 - Slow release
 - Time release

Fertilizers are not plant foods!

- Micro-organisms can directly affect nutrient absorption by plants. The nutrients that are most affected include **Nitrogen and Phosphorous**.
- The application of soil amendments or fertilizers that are high in salts, release high levels of nutrients too quickly, modify soil pH outside a desirable pH range, or cause soils to become too soggy, excluding adequate aeration, can kill soil micro-organisms!

Timing Fertilizers to Seasonal Growth



Fruit Thinning

 Many fruit trees set an overabundance of fruit which often results in small inferior quality fruit and can cause branches to break resulting in severe damage to the tree.



- Thinning fruit when the fruit is small will result in larger, better quality fruit and can prevent branches from breaking due to the weight load of the fruit.
- Twist young fruit off of the tree and leave an average spacing of 2-4 inches between fruit.



Pest Control - Ants

- Ants "farm" many honeydew producing insects. Controlling ants and keeping them out of your trees can greatly help to reduce insect pest problems.
- Ants can be kept out of trees by banding tree trunks with sticky substances such as Tanglefoot.
- Trim branches to keep them from touching structures or plants so that ants are forced to climb up the trunk to reach the foliage.
- Protect young or sensitive trees from possible injury by wrapping the trunk with a collar of heavy paper, duct tape, or fabric tree wrap and coating this with the sticky material.
- Check the sticky material every few days and stir it with a stick to prevent the material from getting clogged with debris and dead ants, which will allow ants to cross.



Pest Control

- Tolerance to low levels of plant pests is a key ingredient to successful pest control.
- When pest numbers become large and damage to your plants becomes unacceptable, control measures often become necessary.
- Proper timing is essential for control measures to be successful!

- Most soft bodied insects can be controlled by using insecticidal soaps.
- Soaps also help to clean your trees and remove honeydew, sooty mold, and dirt and dust.



Pest Control

• Most pest control products used on fruit trees are contact killers. They kill what they touch.



 The key to successfully using pest control products are to be complete and through with your applications and to be consistent with your follow up applications!

Snail and Slugs

- Most snail and slug baits have mateldehyde as the main active ingredient.
- Mateldehyde is very toxic to mollusks as well as dogs, cats, wildlife, fish and people.



- Baits containing Iron Phosphate kill snails and slugs but are of very low risk to dogs, cats, wildlife and people. They are also less toxic to fish than conventional snail baits.
- As these baits break down they become plant nutrients in the form of iron and phosphorous.



Snail and Slug Control

• Snails and slugs cannot crawl over copper.















Birds

- Many birds eat insects in the garden, however, some also eat ripening fruit.
- Birds should be discouraged from you fruit, but never harmed or killed. There are several products available to protect your crop from birds.















Pocket Gophers



- Mounds of fresh soil are the best sign of gopher presence.
- One gopher may create several mounds in a day.
- Gophers usually live alone within their burrow system, except for females with young or when breeding, and may occur in densities of up to 16 to 20 per acre.
- Mounds are formed as the gopher digs its tunnel and pushes the loose dirt to the surface. Typically mounds are crescent- or horseshoe-shaped when viewed from above. The hole, which is off to one side of the mound, is usually plugged.
- To control pocket gophers, it is best to use control products at FRESH mound/tunnel sites.





Gopher Control Products

Traps, Baits and Gases

 Traps are often the most effective. Use in pairs and place back to back.



- Baits work well if used properly. A bait injector tool is a useful tool.
- Gases are most effective when the soil is moist. Gases are often the least effective of these options.



Tree Rats / Roof Rats

- Roof rats eat a wide variety of foods, but their food preferences are primarily fruits, nuts, berries, slugs, and snails.
- Roof rats are especially fond of avocados and citrus and often eat fruit that is still on the tree. When feeding on a mature orange, they make a small hole through which they completely remove the contents of the fruit, leaving only the hollowed out rind hanging on the tree. The rind of a lemon is often eaten, leaving the flesh of the sour fruit still hanging.





Rat Guards

- Cone baffles can exclude rats and other climbing pests from getting into your trees.
- Baffles can be made out of a variety of materials.
- Lower branches must be pruned away and tree must not touch anything that would allow pests to gain access into the tree.





How to Make a Conical Baffle



Controlling Weeds

- Weeds and groundcovers compete with tree roots for water and nutrients. Keeping the soil free of vegetation and covered in mulch beyond the drip line is best for tree health.
- Weeds may also harbor plant pests and diseases.
- Control weeds and vegetation by using mulches and herbicides (organic or inorganic).
 - Pre-emergent herbicides
 - Post-emergent herbicides
 - Contact
 - Systemic

PRUNING:

- A pruning cut is a wound that is a possible entry point for decay, diseases or insects.
- Plants "heal" a wound by a process called compartmentalization. This process surrounds the wounded area both internally and externally with tissue that has greater resistance to decay. The wounded area never grows back together and this wound remains a weakened area for the life of the plant.





PRUNING:

Cutting a small branch and making a small wound is always more desirable than cutting a larger branch and making a larger wound. Larger wounds take longer to "heal" (or compartmentalize) and have greater potential for attack by decay organisms, diseases and insects.



Healing Response to Pruning

- Healing naturally follows pruning or wounding. It starts in the cambium, a thin layer of cells between the wood and bark.
- Two areas of the cambium, the bark ridge at the junction of two limbs, and the branch collar function to close off the wound between the plant and the pruning cut.
- For fastest healing, prune close to the main branch without injuring the bark ridge or branch collar areas.









Natural Target Pruning







Making Proper Pruning Cuts

Natural Target Pruning

- Natural target pruning is a way to minimize the detrimental effects caused by pruning wounds.
- A wound on a tree is a wound forever. Trees <u>seal</u> or compartmentalize a wound, they do not <u>heal</u> a wound.
- The goal of any responsible pruner is to reduce the harmful effects of their pruning wounds. This is done by pruning in such a way as to facilitate the closure and compartmentalization of these wounds as quickly as possible by following the principles of natural target pruning.
- Do not:
 - make flush cuts behind the branch bark ridge.
 - leave living or dead stubs.
 - injure or remove the branch collar.
 - paint cuts.

Pruning Sealers

- Although pruning sealers have commonly been recommended to use on pruning wounds, studies have shown that these products are not beneficial and should not be used!
- At best, they are purely cosmetic and do no good.
- At worst, they trap disease organisms against the wounded area and encourage disease and decay as well as impair the ability of the tree to grow over the wounded area and compartmentalize the wound!
- Do not use these products when pruning your trees!



REASONS TO PRUNE - Structural Strength:

- Pruning for structural strength is especially important on fruit trees. Heavy crops of fruit can easily break branches, severely damaging main scaffold limbs or splitting trunks. Basic guidelines for structural pruning are as follows:
- Train scaffold branches to be spaced along the trunk both vertically and radially when trees are young.
- Increase the crotch angle of branches to greater than 30 degrees by spreading branches apart or by pruning off one of the branches.
- Prune off branches
 which are attached to
 the bottom side of
 attached branches.
 (Unless this is going to
 become the new
 terminal end of the
 branch.)



Poor branch structure. Many branches originating at same point. Branch failure is likely.















REASONS TO PRUNE Health:

- Prune off the four D's: Dead, Damaged, Diseased and Dysfunctional branches.
- Dysfunctional branches are branches which are pointing towards the ground or are crossing or rubbing other branches.



REASONS TO PRUNE Fruit or Flowers:

 Prune to leave flowering and fruiting wood for specific fruit types. (Fruiting spurs, last season's growth/ one year old wood, or current season's growth.)











REASONS TO PRUNE Shape:

- Prune trees to specific shapes for best fruit production.
- Open vase or modified open vase for trees in the genus Prunus.
- Central leader or modified central leader for all others.









REASONS TO PRUNE Shape:

 Many fruit trees can also be pruned or shaped for specific function in the landscape such as shade or patio trees, hedges, screens or espaliers.



REASONS TO PRUNE Direct or redirect growth

- Manage the growth in the tree so that one branch or side of the tree does not overgrow the other portions of the tree and so that the tree keeps a balanced shape.
- Prune to a terminal branch to direct growth in that direction.
- As branches bend downward from the weight of fruit, foliage, or wood, they often need to be pruned back into an upright growing position. Use dropcrotching pruning techniques to a side or top branch to redirect growth.

REASONS TO PRUNE Direct or redirect growth

 As branches bend downward, redirect growth using drop-crotch pruning techniques to a side or top branch to redirect growth upwards.

REASONS TO PRUNE Size:

 Fruit trees which are pruned to their maximum size will produce the greatest amount of fruit. These trees are pruned into central leader or modified open vase shapes.

 To keep fruit trees smaller for ease of picking the fruit, to get more trees into an area, or because of space limitations, prune to modified central leader or open vase shapes.

Never top or head branches or trees!!!

 Topping or heading has many harmful effects on tree growth and tree health. The results include excessive, poorly attached branch growth, disease and decay, and starvation among others and <u>never</u> results in reducing the size of the tree long term!

The only exception is when you are pollarding a tree or creating a hedge.

Never top or head branches or trees!!!

 Reduce the height or width of a tree, or the length of a branch with thinning cuts by the pruning technique known as <u>drop-crotching.</u>

REASONS TO PRUNE : Managing Suckers (Root Suckers)

- Most deciduous fruit trees are grafted.
- All growth arising below the graft or from the root system should be removed to prevent the root stock from dominating and dwarfing out or killing the desired grafted tree.

REASONS TO PRUNE : Managing Water Sprouts:

- Water sprouts are vigorously growing upright shoots arising from above the graft union on grafted trees.
- In some cases, water sprouts can be trained to form strong branches and may be beneficial.
- If water sprouts are excessively crowded, have narrow crotch angles, are crossing or rubbing, or are causing poor branch or tree structure, they should be removed.

Identifying Fruit-bearing wood

- Fruit trees may bear fruit on short-lived (3-5 years) or longlived (5-10 years or more) fruiting spurs, on last years growth, or on current season growth.
- It is extremely important to know the fruiting habits of the fruit tree you are pruning in order to be able to prune correctly and to maximize fruit production.
- Each type of fruiting plants bears fruit on wood of a specific age.
- Fruit wood should be managed to keep trees productive as well as to prevent over production and to help prevent limbs from breaking.

FRUITING HABITS OF COMMON DECIDUOUS FRUIT AND NUTS

Current-Season's Shoots

- Che
- Fig second crop
- Mulberry
- Persimmon
- Quince
- Walnut

Previous-Season's Shoots

- Fig first crop
- Filbert
- Nectarine
- Peach
- Pistachio
- Quince

Previous-Season's Spurs and Shoots

- Apple minor
- Cherry, sour
- Pear minor
- Pomegranate

Long-lived Spurs

- Almond
- Apple
- Apricot and Aprium— short-lived spur
- Cherry, sour
- Cherry, sweet
- Pear
- Pecan
- Plum,
- Plumcot
- Pluot
- Pomegranate

REASONS TO PRUNE: Managing Fruiting Spurs

• As time progresses, fruiting spurs and fruiting wood becomes excessively crowded. This often results in small, poor quality fruit and broken limbs.

•Thin out spurs and fruiting branches to improve light penetration and air circulation, reduce overcrowded fruit, reduce the risk of broken branches and to improve the quality of the remaining fruit.

REASONS TO PRUNE Reduce Pest Problems

 Skirting trees so that lower branches do not touch the ground will greatly help in being able to control ants and the insects that they "farm" as well as snails and rodents.

Timing:

- Improper timing can predispose plants to attack by insects, diseases, or damage from sunburn or sunscald.
- Most pruning should be done during the winter months on deciduous fruit trees when the trees are dormant and when insect populations are suppressed by the winter cold.
- In some cases, lighter summer pruning can be beneficial for keeping trees smaller, however many bark boring insects are promoted by summer pruning. If these insects are common in your area, keep summer pruning activities to a minimum.

Training

 Training branches to grow in specific directions is often a viable option to pruning. This can take advantage of growth which has already developed instead of pruning off already grown branches and waiting for new branches to grow.

 Using training techniques can avoid the wounds made by pruning and therefore reduce the problems associated with those wounds.

Training

- Training should be done when branches are young and flexible enough to bend into shape without breaking or splitting the branch or trunk. Weights, guy wires, stakes or spreaders can be used to train branches.
- If ties are used, the tie material should be at least 1" wide wherever it comes into contact with the bark of the tree to prevent damage to the bark.

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