# Advantages and Disadvantages of Growing Fruit Trees in the Backyard

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
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<tbody>
<tr>
<td>A good source of inexpensive fruits</td>
<td>More backyard waste to deal with</td>
</tr>
<tr>
<td>A pleasing sight</td>
<td>Very ugly if not cared for</td>
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<tr>
<td>Attracts more birds to the backyard</td>
<td>Attracts more birds to the backyard</td>
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<tr>
<td>Attracts butterflies and other insects</td>
<td>Attracts undesirable insects-mosquitoes, Japanese beetle, stink bugs, Asian lady beetle</td>
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<tr>
<td>Attracts wild animals</td>
<td>Attracts raccoons, possums, skunks, rabbits, etc.</td>
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<tr>
<td>Smells good during bloom</td>
<td>Smell of rotted fruits in late summer and early fall</td>
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<tr>
<td>Adds value to the property</td>
<td>Reduce value of property if not cared for</td>
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Challenges to Growing Fruit Trees

- Some skills
- Constant care
- Winter injury and frost damage
- Pollination requirement
- High pest pressure
  - Insects, disease and weeds
- High maintenance cost
  - Planting
  - Training, pruning, pest control, harvesting, storage
Site Requirements

- Plenty of sunshine
- Excellent soil drainage
- Excellent air drainage
- Adequate soil pH

Best if you select the site before you build the house.
Site Selection

EFFECT OF TERRAIN ON MINIMUM TEMPERATURES ON CLEAR, CALM NIGHTS

0°C Cold Air Flow

Pool of Cold Air
-2°C

1°C Cold Air Flow

Cold Air Drainage
Site Selection

- Warm inversion layer
- Radiant heat loss
- Cold air drainage
Pollination Requirement

Most varieties of fruit trees will not set a good crop if grown in isolation.

- **Self-Unfruitful**
  - Apples
  - Jonagold
  - Pears
  - Plums

- **Self Fruitful**
  - Nectarine
  - Peaches
  - Cherries
Most European plums (Earliblue, Blue Ribbon) require cross pollination. European prune-type Plums (Stanley and Damson) are self-fruitful. Japanese plums (Shiro&Red Heart require pollination)
Pollination Requirement

- Idared
- Manchurian crab
- Liberty
- Empire
- Honeycrisp
- Jonafree
- Akane
- Redtree
- Jonathan
- Jonagold
- Red Delicious
- Gala
- Golden Delicious
- Winter Banana
- Snowdrift crab
- Granny Smith
- Mutsu (Crispin)
- Fuji
- Braeburn
- Pristine
- York
- Enterprise
- GoldRush
- Rome
Limitations to Growing Fruit Trees

Diseases

- Fireblight - Bacterial diseases of flowers, leaves, twigs
- Scab - Fungal disease of leaves and fruits
- Summer diseases - Mostly on fruits leaves and

<table>
<thead>
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<th>Summer diseases</th>
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<tbody>
<tr>
<td>Brooks spot</td>
<td>Glomerella</td>
</tr>
<tr>
<td>Alternaria blotch</td>
<td>leaf spot</td>
</tr>
<tr>
<td>Sooty blotch</td>
<td>Black pox</td>
</tr>
<tr>
<td>Flyspeck*</td>
<td>Necrotic leaf</td>
</tr>
<tr>
<td>Black rot*</td>
<td>blotch</td>
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<tr>
<td>Bot rot*</td>
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<tr>
<td>Bitter rot*</td>
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Fireblight

Symptoms: Shepherd’s hook, dark leaves, and dark oozing on trunk and branches

- Plant less susceptible varieties and rootstocks
- Do not over fertilize with nitrogen
- Do not prune during bloom.
Apple Scab

Symptoms. Green to brown spots on leaves and fruits. Fruit turn scabby late in season. Leaves drop from infection. Collect leaves and burn outside the orchard. Remove mummy fruits. Spray fungicides.
Summer Diseases

Flyspec and Sooty Blotch

Necrotic leaf blotch “GD’

Alternaria blotch – *Alternaria mali*

Discard old leaves and pruning wood- Spay fungicides
Insects

- Apple maggot- Sticky traps, apple sphere, traps
- Codling moth- Frass on fruit surface. Larvae tunnels to the core. Infection can occur from bloom to one month before harvest, depend on number of generations. Use Pheromones
- Plum curculio- serious on Liberty
- San Jose scale
Disease Resistant Apple Cultivars

- **Redfree.** Fruit matures early season. Fruits are medium size with bright red color. Flesh is firm with good texture. Flavor is sweet and aromatic. Fruit stores one month or more in refrigeration. It is good for fresh eating and cooking. The cultivar is field immune to apple scab and cedar apple rust, and is moderately resistant to powdery mildew. It has good resistance to fireblight. Pollinates with other mid- and late-blooming cultivars.

- **Jonafree.** Fruit matures mid season. Fruit is medium in size with a 75-90% medium red blush. Flesh is firm, crisp, and moderately rich in flavor. Its flavor is similar to Jonathan and good for fresh eating, sauce, pies, and cider. It is not prone to bitter pit or Jonathan spot. The cultivar is field immune to scab, and is less susceptible to powdery mildew, fire blight, and cedar apple rust than Jonathan. Pollinates with Goldrash or Enterprise.
Disease Resistant Apples

- Liberty. Mature in mid September. Fruit is medium in size and is mostly red-striped over a greenish-yellow background. Flesh is white, fine-textured, crisp, and juicy. Flavor is very good, sprightly, subacid, and sweet. Good for eating fresh, cooking, canning, and desserts. The cultivar is highly resistant to apple scab, and is resistant to cedar apple rust and fire blight. It is moderately resistant to powdery mildew but very attractive to plum curculio.

- Enterprise. Matures late season (Late September to early October). Fruit is large in size. It has a bright red and glossy finish. It is firm and crisp. Its flavor is spicy and juicy. It is good for fresh eating and cooking. It stores well if refrigerated. The cultivar is field immune to apple scab, is moderately resistant to powdery mildew, and is highly resistant to cedar apple rust and fire blight. Pollinates with Goldrush, Gala, and Golden Delicious.

http://www.hort.purdue.edu/newcrop/pri/coop43.html
Disease Resistant Apples

- Goldrush. Matures late season. Fruit is large, very crisp. The skin is greenish-yellow with some russet. Fruit is semi-tart and juicy and has exceptional storage life. It is good for fresh eating and cooking. It is field immune to apple scab, moderately resistant to powdery mildew, and highly resistant to fire blight. Pollinates with Enterprise, Gala, and Golden Delicious.
New fireblight-Resistant European Pears
Backyard Tree Establishment

- Rootstocks selection
- Training systems
- Pruning tips
- Fertilizers
- Harvesting
- Storing
Backyard tree Management Decisions

A. Tree Establishment
B. Tree Maintenance
Decisions made during tree establishment have the greatest impact on future management of that tree.
Site Selection and Preparation

- Avoid planting trees very close to walls, so roots will not be constricted.
- Avoid planting on the northern and western end of the house because of shade in the former and poor fruit drying in the later.
- Avoid planting in a refill location or if there is a soil hardpan.
- Avoid planting next to black walnut, pine, or other allelopathic trees.
- Do not plant in the path of shade trees.
- Install drainage pipes in we siets.
- Check soil pH.
“Facts About Growing Fruit Trees”

- A well trained tree at a young age is much easier to manage at an older age
- A well trained tree requires minimum follow up maintenance
- A well trained tree does not go bad unless neglected
- Some trees are harder to train than others, but it can be done
- Training requires constant monitoring and adjustments—Constant care
- What does these facts remind of?
Orchard Establishment Considerations

Planting considerations

- Rootstock selection
  - Many on the market but a few will fit your needs
  - Pay attention to size, yield, vigor, disease resistance, runting, and compatibility
- Varieties
  - Texture and flavor preference
  - Disease and insect resistance
  - Rootstock compatibility
Rootstock Selection

Red Delicious M27/M111 dwarf
Other Noteworthy Rootstocks

- Bud 491 and 490
- P.22
- Geneva rootstocks- Fireblight resistant
  - Geneva 65, Geneva 16 and Geneva 30
- M.9 clones
Malling Rootstocks

- MM.106 and MM. 111 too big for a backyard unless you have the space. Trees could reach 16 – 18 feet.
- M.7 EMLA. Tree is relatively big (12 -16 feet at full maturity. Some resistance to fireblight, does not need support beyond first two years. Does not need much irrigation.
- M.26 EMLA. Medium size tree 10 -14 feet. Excellent yield and fruit quality, but susceptible to fireblight and need support and water.
- M.9 EMLA. Many clones.. Most used is M9.T.337. Small to medium size 8 to 12 feet. Very good yield and fruit quality. Susceptible to fireblight, need support and water. Incompatible with ‘Gala’.
**Budagovsky 9 (Bud-9)**

**Advantages**
- Excellent cold hardiness
- Good for a small backyard
- Moderately resistant to fireblight
- Some collar rot resistance
- Compatible with most varieties
- Proven performance in north America

**Disadvantages**
- Needs support
- Develops burrknots on some varieties
- Not as productive as EMLA 9 clones
Planting Factors

- **Planting location**
  - Plenty of light
  - Fruit trees do not like wet feet
  - Avoid replant sites

- **Spacing**
  - Rootstock and scion

- **Support**
  - Rootstock and scion

- **Irrigation**
  - A must for dwarf trees
Planting Methods
Planting considerations
Training Systems

- Training systems
  - Central leader
  - Vertical axis
  - Slender spindle
    - Lincoln canopy
    - Palmette
    - Tatura
    - Ebro Espalier

- What to look for in a training system
  - Light penetration efficiency
  - Effect on fruit quality (sunburn, fruit color, and size)
  - Establishment cost
Preferred Training Systems

Central Leader  Vertical Axis
Light and Fruit Distribution as a Function of Training Systems

Central Leader

- Light: 74, 62, 36, 55, 35, 10, 49, 21, 9
- Fruit: 32, 48, 20

Vertical Axes

- Light: 49, 55, 26, 49, 55, 26
- Fruit: 48, 10, 42

Overgrown central Leader

- Light: 68, 54, 45, 48, 30, 10, 34, 13, 4
- Fruit: 40, 45, 15
Central Leader
Training apple trees to vertical axe or central leader at planting

Remove all and head 40 to 50” above ground

keep all and head 3-5” above a usable branch
How to train trees to the Vertical Axe system
Vertical Axis
A six-year old ‘Gala’ tree on Bud-9 trained to the vertical Axis
What not to do
Pruning Considerations

- When to prune?
- What to prune?
Simple facts helps you take the guess work out of pruning
Naturally:
- Horizontal branches produce laterals, while vertical branches seldom do.
- Vertical branches are more vigorous than horizontal branches.
- Branches with wide angle are stronger.
Branches response to heading
Branch Angle and Fruiting
Prune for Fruit Size and Color
Weed management
Other Cultural Practices

- Fertility management
  - Nutrients availability is compromised by inadequate pH. Adjust soil pH before adding any nutrients

- Moisture control -- Mulching
## Recommended rates of nutrient sprays

<table>
<thead>
<tr>
<th>Nutrient type</th>
<th>Rate (lb/acre)</th>
<th>Timing</th>
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<tbody>
<tr>
<td>Urea</td>
<td>6 to 12</td>
<td>Immediately after bloom but not later than 2\textsuperscript{nd} cover</td>
</tr>
<tr>
<td>Calcium (chloride)</td>
<td>2 to 8</td>
<td>All cover sprays</td>
</tr>
<tr>
<td>Solubor or Soil applied boron</td>
<td>3 to 4, 1.5-7.5 actual Boron</td>
<td>Petal fall and first cover, Before bloom</td>
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Boron & calcium nutrition
Never use straw mulch around the trunk of apple trees
Pine Voles
Dear and Mole
control

For deer control.. Fences, soap, hot pepper, ammonia
Chemicals- Plantskydd

For moles.. Traps, chemicals. For chemicals –Talpirid
contains lethal doses of bromethalin