

## **Disease Resistant Apple Trees For Wildlife** by Loren Vannest

Some misinformed people believe all apple trees require very demanding maintenance practices to grow successfully. This misconception is based upon a partial truth that is mostly false. Apple trees do face a host of potential diseases and pests. Apple varieties grown for the commercial market do require a demanding spraying program to ward off diseases and produce the flawless fruit the market requires. Too many assume that all apple trees are similarly susceptible to disease. There are some varieties of apple trees that are resistant to disease. That fact is not widely understood or appreciated. Those who eschew planting apple trees for deer believing it to be impractically difficult, are terribly and tragically mistaken. Even "wild apple trees" that have never received any care can and do survive to produce fruit that is often somewhat imperfect, but readily consumed by deer and other wildlife. Expensive and time consuming spraying of fungicides is not an absolute necessity for successfully growing apples for wildlife. Disease resistance does not typically mean total immunity from disease or insect damage. Disease resistance means a lower susceptibility and a reduced risk of serious damage. There are a few trees that are "field immune" to specific threats.

Planting apple (or pear) trees is potentially the most cost efficient and effective way to attract whitetails in the fall over the long term. Food plots are the only option for generating a concentrated supply of high energy forage for whitetails over the short term. Food plots however are associated with high annual cost. Mast bearing trees (fruits and nuts), can easily rival or exceed food plots in terms of delivering high energy forage. Once established, mast bearing trees have low to no ongoing cost. Consequently, the ideal plan would involve planting food plots for the short term, and mast bearing trees for the longer term. Some hard mast like acorns (oak trees) are very long term propositions, too long for most to seriously consider. While I have planted hundreds of oak, I know that most of the benefits (if oak wilt doesn't kill them) will be realized long past my lifetime. Most oaks take about twenty years to start producing acorns. Peak production may only be had after about a fifty (or more) year wait. Apple trees do take some time but not a lifetime. Apple trees on dwarfing rootstock can produce fruit in as little as two or three years. Standard (full size) apple trees take about eight years to begin producing fruit. A standard apple tree's full maturity and peak production may take twenty years. I much prefer waiting a bit longer for standard apple trees to grow up because they are: more securely rooted, grow to full size, are healthier, live far longer, and produce far more fruit at maturity.

According to my research and calculations, among the mast tree options, pome fruit trees (apple and pear) generate by far the highest nutritional energy per acre. An apple or pear orchard one acre in size can produce 34 thousand pounds of fruit, or about 8.0 million calories. Oak trees, because they are given to boom and bust cycles, only average about 1.2 million calories per acre. Chestnut trees, which are more consistent producers than oak, produce a better average calorie yield of about 3.3 million calories per acre. Even an acre of especially high energy sugar beets can only about match that of apple trees, yielding about 7.8 million calories per acre. The potential energy yield of pome fruit rivals or exceeds virtually all food plots. Only commercially grown corn can exceed that of apple or pear trees in terms of calorie yield per acre.

The natural inclination might be to obtain and plant familiar apple names. That would likely be a big mistake. The most familiar apples come from trees that are susceptible to multiple diseases.

Familiar but Not Particularly Disease Resistant Apple Varieties				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Apple Rust
Braeburn	Susceptible	Highly Susceptible	Susceptible	Susceptible
Cortland	Highly Susceptible	Susceptible	Highly Susceptible	Susceptible
Empire	Highly Susceptible	Resistant	Susceptible	Resistant
Fuji	Susceptible	Susceptible	Susceptible	Susceptible
Gala	Susceptible	Highly Susceptible	Susceptible	Susceptible
Golden Delicious	Susceptible	Susceptible	Susceptible	Highly Susceptible
Granny Smith	Susceptible	Highly Susceptible	Highly Susceptible	Resistant
Honeycrisp	Susceptible	Susceptible	Susceptible	Susceptible
Jonagold	Highly Susceptible	Highly Susceptible	Susceptible	Highly Susceptible
Jonamac	Susceptible	Susceptible	Susceptible	Resistant
Jonathan	Susceptible	Highly Susceptible	Highly Susceptible	Highly Susceptible
McIntosh	Highly Susceptible	Susceptible	Susceptible	Highly Resistant
Mutsu (Crispin)	Highly Susceptible	Highly Susceptible	Highly Susceptible	Susceptible
Northern Spy	Susceptible	Resistant	Susceptible	Susceptible
Pink Lady	Susceptible	Susceptible	Susceptible	Highly Susceptible
Rome Beauty	Highly Susceptible	Highly Susceptible	Susceptible	Highly Susceptible
Suncrisp	Susceptible	Susceptible	Susceptible	Susceptible

Heirloom apples are those older varieties discovered as “chance seedlings” and preserved through decades or even centuries for purposes of: fresh eating, apple sauce, cooking, hard cider, and long storage life. The evidence suggests that disease resistance was a lower priority. Some heirloom trees have broad disease resistant profiles, but most do not. The apples we know from the produce section of the grocery (commercial apples) are rather large, good looking, and tasty to our palate. Most are not very disease resistant. Commercial growers accept disease susceptibility and the extra time and costs involved in keeping their orchards free of disease and pests in order to deliver the apples the market demands. Growing trees that lack disease resistance is one reason why commercial orchards must spray their trees to keep them healthy and economically viable. Resistance to disease has not typically been a high priority for either category of familiar apple varieties. So the apple names we are familiar with, both commercial and heirloom, typically happen to exhibit rather poor resistance to disease. Lacking a keen sense of smell (like that of deer), we often select fruit at the grocery with superficial appearance criteria. Deer do not seem to be impressed with the appearance of fruit. We typically prefer larger apple fruit. Deer prefer smallish fruit that fit in their mouths. We place a

high priority upon taste and texture. Deer often appear to be more driven to consume what they need nutritionally. We prefer thinner skinned fruit. Thicker skinned fruit is more durable and insect resistant. That humans and deer both eat apples can be very misleading. Our sense of taste is very dissimilar. Our digestive systems are very dissimilar. In general, wildlife seem to find a wider range of fruit and nuts palatable than we do. For example: a deer finds a white acorn to be relatively “sweet” and highly palatable, but if you’ve ever tried to eat a raw white acorn you undoubtedly found it to be extremely bitter and totally inedible. Acorns contain tannins which are potentially toxic to humans. “Sweet Crabapple” makes for another good example. To our senses it is only sweet smelling, the flesh is very bitter and entirely inedible. While deer may also prefer sweeter fruit, they will eat up the very bitter “sweet crabapple” fruit. Deer evidently find a much wider range of fruit palatable. The traits we humans seek out in our apples are not the appropriate criteria for selecting an apple tree intended to feed deer. The traits I look for are: disease resistance first, drop period second, fruit durability third, fruit production fourth. I find enough of the other qualities I am looking for within the realm of disease resistant trees that I see no compelling reason to plant trees that are susceptible.

When I planted my first apple trees (around 2003 or 2004) I was almost entirely ignorant of the diseases that commonly afflict apple trees, or the existence of disease resistant apple trees. Searching for disease resistant apple trees didn’t even occur to me. Meanwhile the first named backcross scab resistant genotype apple tree (Prima) was released by the PRI cooperative in 1970, more than thirty years prior. Even well prior to 1970 (decades prior if not centuries) there were particular heirloom apple trees that were known to have resistance to the common diseases. Yet I was clueless. The local nursery I obtained my first apple trees from carried only the long established and better known varieties. The tags might (or might not) have indicated the appropriate cold hardiness zones, but there was no indication of disease resistance, if any. One of my earlier efforts included planting a Braeburn apple tree. I was happy knowing Braeburn apples were a very late ripening variety. I didn’t know that Braeburn apple trees are very susceptible to blight and susceptible to scab, mildew, and rust. In retrospect planting a Braeburn apple tree was a big mistake. I didn’t begin to seriously research apple trees until about 2020. It was then I began to realize how helpful disease resistance might be for the purposes I had in mind: apple fruit for whitetail deer, in an implied low maintenance, or no spray situation. The PRI cooperative had by then released about a dozen named disease resistant apple trees, including most of my (now) favorites. I recently conversed with a former nursery owner and operator who had himself never heard of any of the most reliably disease resistant apple trees I mentioned. I strongly suspect that my experience is probably far too common. This article is dedicated to the enlightenment I wish I had been exposed to many years ago: there are disease resistant apple trees in existence. It is also intended to inform the reader which trees are disease resistant, and the growers or nurseries that offer them.

The specific disease resistance most desired is conditional, potentially based to some degree upon geographic location and environmental factors.

Apple Scab is the most common disease afflicting apple trees. It is a threat everywhere apple trees are grown. This fungal disease can affect every part of the plant, including the fruit. In the worst case, scab can damage an entire crop. In virtually all cases the fruit yield is negatively affected. Raking up the leaves or mowing the leaves with a mulcher can help break up the overwintering cycle. Pruning to allow air to circulate through the canopy can help minimize the severity of any infection. Planting with generous spacing will also permit better air circulation. Planting scab resistant trees is the best way to minimize the potential damage. A few cultivars have been developed that are so resistant to scab as to be rated "field immune".

Fire Blight is the most serious disease affecting apple trees, it can kill trees that are infected. The disease can spread quickly, and in the worst cases can wipe out entire orchards. It is most threatening when spring or summer weather is warm, humid, or rainy. Fire blight is a potential threat anywhere apple trees are grown, but more likely in warm humid regions and less likely in cool drier climates. Planting fire blight resistant trees is the best way to ward off the disease.

Powdery Mildew reduces both apple yield and quality, in the most extreme cases it can prevent any fruit from forming. Mildew is a potential threat everywhere apples are grown. Planting trees in full sun, in areas with good air circulation, and employing generous spacing, will help them dry out and therefore resist mildew. Planting trees that exhibit resistance or tolerance to powdery mildew is a good way to minimize the damage from the disease.

Juniper-Apple Rust, also known as Cedar-Apple Rust, isn't usually lethal. If the stem becomes infected, it will stunt fruit development. Severe infections can cause defoliation. Repeated defoliation can eventually kill trees. Rust diseases can infect apple trees wherever plants of the juniper family are present locally. Eliminating all plants in the juniper family in the area is the best way to manage juniper rust disease. Since windblown spores can travel a fair distance, whenever junipers are growing in the wider area, selecting trees with rust resistance is the next best way to manage this disease.

Summer Rots (Brown Rot, Bitter Rot, and Phytophthora Root Rot) are all fungal diseases. Fungus thrive in high temperatures coupled with high humidity. These diseases are not as common in cooler and less humid climates. To help avoid such diseases, plant apple trees in a well-drained location with full sun and good air flow. Plant trees with extra generous spacing. Prune trees to open up the canopy to light and air circulation. Remove any pruning or landscaping debris, and any damaged or diseased fruit or limbs. Thin out the fruit. There are no varieties that are resistant to bitter rot. There are varieties that are tolerant of phytophthora and brown rot. If these two diseases are a problem in your area, learn which cultivars are resistant and plant them.

Apple Canker is thought to be more serious on wet, heavy and/or acid soils, so plant on well drained soils and amend soil with lime if the soil is too acidic. There are varieties of apple tree that exhibit some resistance to canker.

Sooty Blotch is limited to the surface and will not cause rot, so it is essentially only superficial.

The relative desirability or ranking of the specific disease resistance is somewhat situational depending on climate and other factors. Three disease threats remain fairly constant: scab, blight, and mildew. In cold hardiness zones two, three, and four, the threat of fire blight is somewhat diminished, so scab resistance should probably be the first priority. In cold hardiness zones five, six, seven, and eight, where the threat of fire blight is greater, resistance to that disease should probably be the first priority. Strong resistance to mildew is rather rare so it might be the third priority. I always look for at least some resistance to the big three: scab, blight, and mildew. There are at least fifty different apple trees that exhibit some resistance or tolerance to all three diseases.

Beginning in the mid 1900's a collaboration between three universities (Purdue, Rutgers, and Illinois) known as "PRI" utilized a modified back cross breeding strategy to develop scab resistant apple trees that would produce fruit that was also tasty and marketable. The cooperative has since produced about 1,500 selections of which 44 have been released for advanced testing. There are now at least 17 similar breeding programs across the world. Backcross breeding has succeeded in producing a wide range of genotypes that exhibit high resistance to scab disease. The cultivars that also possessed good flavor, large fruit, crisp flesh, and good storage behavior were named and patented. These releases offer a broad range of flavor and color. They also are available in a very broad range of growing days needed to develop and reach full ripeness. Variations in ripening periods and hang time produce a very broad range of drop periods.

Probably none of the apple trees in the table below are familiar, but they are about as good as it gets where reliable disease resistance is concerned.

<b>Possibly The Most Reliably Disease Resistant Apple Trees In Existence</b>				
<b>Name</b>	<b>Apple Scab</b>	<b>Fire Blight</b>	<b>Powdery Mildew</b>	<b>Cedar Rust</b>
Sundance	Immune	Very Resistant	Resistant	Very Resistant
Novamac	Very Resistant	Very Resistant	Resistant	Very Resistant
Liberty	Immune	Resistant	Resistant	Immune
William's Pride	Immune	Resistant	Resistant	Very Resistant
Freedom	Very Resistant	Very Resistant	Resistant	Resistant
Galarina	Very Resistant	Very Resistant	Very Resistant	Very Resistant
Kerr	Resistant	Very Resistant	Resistant	Very Resistant
Enterprise	Immune	Resistant	Moderate Resistance	Resistant
Nova Spy	Resistant	Very Resistant	Moderate Resistance	Susceptible
Goldrush	Immune	Resistant	Resistant	Susceptible
WineCrisp	Immune	Resistant	Resistant	Susceptible

Ironically, although the backcross breeding efforts have always been intended for the commercial market, none have been widely adopted for such use. They are however very useful in a low maintenance or even no spray situation like that of organic growers and those planting for wildlife nutrition and attraction.

Worldwide there may be about 30,000 named apple varieties. There are over 7,500 culinary apples that have been patented. I have been able to identify only about 200 that might be disease resistant enough to be recommended for a no spray situation. Although apparently relatively rare, disease resistant grafted apple trees are no more expensive than are grafted varieties that are susceptible to disease. Consequently, unless you are willing to have your trees damaged by disease, or are prepared to spend a great deal of time and financial resources spraying your apple trees, plant only disease resistant apple trees. The table below details the disease resistance ratings of other particularly scab resistant backcross bred apple trees developed by the PRI cooperative and other similar efforts.

Reliably Disease Resistant Apple Trees				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Redfree	Immune	Moderate Resistance	Moderate Resistance	Very Resistant
Dayton	Immune	Resistant	Moderate Resistance	Moderate Resistance
Pixie Crunch	Immune	Resistant	Susceptible	Susceptible
Pristine	Immune	Moderate Resistance	Resistant	Susceptible
Crimson Crisp	Immune	Moderate Resistance	Moderate Susceptible	Moderate Susceptible
Jonafree	Immune	Moderate Susceptible	Resistant	Susceptible
Scarlett O'Hara	Immune	Susceptible	Resistant	Resistant
Bonkers	Very Resistant	Resistant	Resistant	Resistant
Bella	Very Resistant	Resistant	Resistant	Resistant
Cordera	Very Resistant	Resistant	Resistant	Resistant
RubyRush	Very Resistant	Resistant	Unknown	Resistant
Nova Easygrow	Very Resistant	Moderate Resistance	Resistant	Resistant
Redfield	Very Resistant	Resistant	Unknown	Unknown
Florina Querina	Very Resistant	Resistant	Resistant	Highly Susceptible
Priscilla	Very Resistant	Moderate Resistance	Resistant	Resistant
Murray	Very Resistant	Unknown	Unknown	Resistant
Spartan	Resistant	Resistant	Resistant	Unknown
Sansa	Resistant	Resistant	Resistant	Very Resistant
Chieftain	Resistant	Resistant	Unknown	Unknown
Macfree	Resistant	Resistant	Susceptible	Susceptible

Disease resistance ratings for most heirloom trees is typically somewhat nebulous, based upon reputation rather than rigorous scientific testing.

Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Keener Seedling	Very Resistant	Very Resistant	Very Resistant	Very Resistant
Harrison	Very Resistant	Very Resistant	Resistant	Very Resistant
Bramley's Seedling	Very Resistant	Resistant	Resistant	Resistant
Claygate Pearmain	Very Resistant	Resistant	Resistant	Resistant
Dabinett	Resistant	Very Resistant	Resistant	Resistant
Campfield	Resistant	Resistant	Resistant	Resistant
Yates	Resistant	Resistant	Resistant	Resistant
Dolgo	Resistant	Resistant	Resistant	Resistant
Hudson's Golden Gem	Resistant	Resistant	Resistant	Resistant
Burford Redflesh	Resistant	Resistant	Resistant	Resistant
Grimes Golden	Resistant	Resistant	Resistant	Resistant
Hubbardston Nonsuch	Resistant	Resistant	Resistant	Resistant
Gilpin Apple	Resistant	Resistant	Resistant	Resistant
Magnum Bonum	Resistant	Resistant	Resistant	Susceptible
Black Oxford	Resistant	Resistant	Unknown	Very Resistant
Franklin	Resistant	Resistant	Unknown	Resistant
Kid's Orange	Resistant	Resistant	Unknown	Resistant
Belle De Boskoop	Resistant	Resistant	Unknown	Unknown
Centennial	Resistant	Resistant	Unknown	Unknown
Arkansas Black	Mod. Susceptible	Very Resistant	Unknown	Very Resistant
Court Pendu Plat	Very Resistant	Unknown	Very Resistant	Unknown
Jefferis	Very Resistant	Unknown	Very Resistant	Unknown
Blacktwig Mammoth	Resistant	Unknown	Resistant	Unknown
Hauer Pippin	Resistant	Unknown	Resistant	Unknown
Hardy Cumberland	Resistant	Unknown	Unknown	Unknown
Williams Favorite	Very Resistant	Some Resistance	Resistant	Very Resistant
Kinnaird's Choice	Unknown	Very Resistant	Very Resistant	Unknown
Blue Pearmain	Unknown	Very Resistant	Unknown	Unknown
Black Limbertwig	Unknown	Resistant	Resistant	Resistant
Virginia Beauty	Unknown	Resistant	Resistant	Resistant
Keepsake Apple	Unknown	Resistant	Unknown	Resistant

**Blue Hill Wildlife Nursery** (Zone 6b) is pioneering a new category of apple trees. These more recently discovered trees are derived from chance seedlings selected for their desirable wildlife traits. From the Blue Hill website: "The qualities I wanted in wildlife trees were: abundant annual fruit production, fruit production at a young age, good taste and attraction for whitetails and myself, and drop times starting in October and beyond, so I had fruit when the orchards of my neighbors were empty." The disease resistance descriptors in the chart below are simply the observations of Ryan Haines the owner/operator. I'm given to trust Ryan and his reports.

Blue Hill Wildlife Nursery - Chance Wildlife Apple Trees				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Big Ten Apple	Immaculate	Immaculate	Immaculate	Immaculate
Lock Down Applecrab	Super Clean	Super Clean	Super Clean	Super Clean
Cobbler Applecrab	Super Clean	Super Clean	Super Clean	Super Clean
Roadkill Crabapple	Excellent Resist	Excellent Resist	Excellent Resist	Excellent Resist
Winter Crabarina Crabapple	Excellent Resist	Excellent Resist	Excellent Resist	Excellent Resist
Gram's Gift Crabapple	Excellent Resist	Excellent Resist	Excellent Resist	Excellent Resist
Peak Attraction Applecrab	Highly Resistant	Highly Resistant	Highly Resistant	Highly Resistant
Number Five Crabapple	Highly Resistant	Highly Resistant	Highly Resistant	Highly Resistant
Sweet Dog Applecrab	Great Resist	Great Resist	Great Resist	Great Resist
Turning Point Applecrab	Strong Resist	Strong Resist	Strong Resist	Strong Resist
August Apricot Crabapple	Strong Resist	Strong Resist	Strong Resist	Strong Resist
Rusty's Favorite Apple	Excellent Resist	Excellent Resist	Excellent Resist	Mod. Resist
Buckman Applecrab	Good Resist	Good Resist	Good Resist	Excellent Resist
Sweet November Applecrab	Good Resist	Good Resist	Good Resist	Good Resist
Whole Season Crabapple	Good Resist	Good Resist	Good Resist	Good Resist
Big Dog Applecrab	Good Resist	Good Resist	Good Resist	Good Resist
October Crabapple	Good Resist	Good Resist	Good Resist	Good Resist
Ed's Crazy Applecrab	Resistant	Resistant	Resistant	Resistant
Smitty's Seedling Apple	Resistant	Resistant	Resistant	Resistant
Candy Applecrab	Resistant	Resistant	Resistant	Resistant
Big Lou Applecrab	Resistant	Resistant	Resistant	Resistant
Sonofcal Crabapple	Resistant	Resistant	Resistant	Excellent Resist
Primetime Crabapple	Mod. Resist	Excellent Resist	Excellent Resist	Excellent Resist

Ryan Haines commenting on Primetime Crabapple: " I love this tree, which I describe as moderately scab resistant. It is very capable of producing abundant fruit falling at the appropriate time even when putting it in the worst-case scenario like not being mowed under for many years."

**Blue Hill Wildlife Nursery** is my preferred source for wildlife fruit trees due to: the wide variety of disease resistant trees with varied drop periods, and the standard size rootstock used in grafting. Standard root-stock will grow more securely rooted, bigger, healthier, longer lived, more cold hardy, and more productive trees. While the back-cross bred apple trees by PRI and others are available from other sites, they are almost always offered on semi-standard rootstock. While it is possible, as I understand it, to “bury the graft” which will cause the tree to “grow on its own roots”, My experience suggests you may want a backhoe for the job as the hole will need to be quite deep. Indications elsewhere suggest other risks are associated with burying the graft. Consequently, I see great advantage to grafting onto full size or standard roots. Again, the disease resistance descriptors in the chart below are simply the observational reports of Ryan Haines the owner/operator, not the disease resistance ratings derived from other sources.

Blue Hill Wildlife Nursery - Backcross Bred on Standard Dolgo Rootstock				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Liberty Apple	Immune	Excellent Resist	Excellent Resist	Immune
Enterprise Apple	Immune	Highly Resistant	Highly Resistant	Highly Resistant
GoldRush Apple	Immune	Resistant	Resistant	Susceptible
Chestnut Crab	Excellent Resist	Excellent Resist	Excellent Resist	Excellent Resist
Trailman Applecrab	Excellent Resist	Good Resistance	Good Resistance	Excellent Resist
Kerr Applecrab	Good Resistance	Good Resistance	Good Resistance	Excellent Resist
Priscilla Apple	Excellent Resist	Excellent Resist	No Information	Excellent Resist
RubyRush Apple	Excellent Resist	Excellent Resist	No Information	Excellent Resist
Galarina Apple	Strong Resistant	No Reports	No Information	Strong Resistance
Freedom Apple	Resistant	Resistant	Resistant	Resistant

**Blue Hill Wildlife Nursery** also offers a few of the most likely heirlooms for wildlife. Again these trees may be available elsewhere but not likely on full size standard roots. I have purchased trees from Blue Hill and was very happy with the product I received. I have corresponded a bit with Ryan Haines, he has been especially gracious with his time and expertise. I have looked hard and long and have not located a better source for disease resistant wildlife fruit trees.

Blue Hill Wildlife Nursery - Heirloom Apple Trees				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Keener Seedling	Good Resistance	Good Resistance	Good Resistance	Good Resistance
Yates Applecrab	Very Resistant	Very Resistant	Very Resistant	Good Resistance
Arkansas Black	Extreme Resistance	Extreme Resistance	Mod. Susceptibility	Extreme Resistance
Acorn Pippin	Resistant	Resistant	Resistant	Susceptible
Dolgo Crab	Resistant	Resistant	Resistant	Resistant

**Midwest Deer Trees** (Zone 4a) has much in common with my favorite grower and source: wildlife centric chance seedlings and full size standard rootstock. This source boasts an almost completely unique inventory of disease resistant trees. Midwest and Blue Hill both carry Buckman and Big Dog, and they are the only two with permission to graft these two great applecrabs. This nursery is located about as far north as nurseries go, so their trees tend to be especially cold hardy. This is probably a go to source for planting in cold hardiness zones 3 or 4.

Midwest Deer Trees - Wildlife Chance Seedlings			
Name	Apple Scab	Fire Blight	Cedar Rust
Holy Applecrab	Resistant	Resistant	Resistant
Buckman Applecrab	Resistant	Resistant	Resistant
No Bull Crabapple	Resistant	Resistant	Resistant
Big Dog Applecrab	Resistant	Resistant	Resistant
Wild Azz Applecrab	No Sign	No Sign	Resistant
Yellow Belly Applecrab	Resistant	Resistant	Resistant
County Road Crabapple	Resistant	Resistant	Resistant
Spunk Lake Applecrab	Resistant	Resistant	Resistant
Mailbox Crabapple	Resistant	Resistant	Resistant

**Midwest Deer Trees** now offers a number of new additions to their offerings that have yet to have any disease resistance attributed to them. This nursery appears to offer only what they deem sufficiently disease resistant, so one might anticipate the new varieties are likely to be acceptable from a disease resistance perspective as well. Similarly resistance to powdery mildew is not described but might be assumed at least to some degree. Few apple trees seem to possess very strong resistance to that particular disease in any case. I have yet to place an order with Midwest but I plan to. I'm sure I won't be satisfied until I have at least one of each of the rather unique offerings growing on my property.

Midwest Deer Trees - New Wildlife Chance Seedlings			
Swamp Donkey Crabapple	No Information Yet	No Information Yet	No Information Yet
Courthouse Crabapple	No Information Yet	No Information Yet	No Information Yet
Sauk River Winter Apple	No Information Yet	No Information Yet	No Information Yet
Big Timber Crabapple	No Information Yet	No Information Yet	No Information Yet
Coopersville Crabapple	No Information Yet	No Information Yet	No Information Yet
Johnny Crabapple	No Information Yet	No Information Yet	No Information Yet

Pre orders start January 1st at Midwest Deer Trees.

**WhitetailCrabs** (Zone 6a) as of 2024 offered the best price points for grafted disease resistant apple trees intended for deer that I have discovered thus far. All of the inventory is grafted to semi standard rootstock. The cost advantage alone probably renders this grower worthy of serious consideration. Like the previous growers it offers a few unique wildlife chance seedlings whose disease resistance is depicted below. There are obviously some trees that lack disease resistance observations. I purchased and planted a few trees from WhitetailCrabs in 2024 and can report that the plants were more than satisfactory. The disease resistance depicted in the tables below are those from the website rather than ratings available elsewhere. See the disease resistance ratings at the beginning of this article for more consistency and comparable ratings. WhitetailCrabs, I believe, offers enough variety to qualify as a one stop shop.

WhitetailCrabs - Wildlife Chance Seedlings				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Droptine Crabapple	Good Overall	High Resistance	Good Overall	Good Overall
Crossbow Crabapple	Good Overall	Very Resistant	Good Overall	Good Overall
30-06 Crabapple	High Resistance	High Resistance	No Information	High Resistance
Ten Point Crabapple	Good Overall Disease Resistance (WhitetailCrabs)			
Turkey Crabapple	No Information	No Information	No Information	No Information
Gray Ghost Apple	No Information	No Information	No Information	No Information

I am particularly drawn to Droptine Crabapple because the fruit is a larger (1' to 1.25") crabapple and it appears to drop fairly late (late fall into winter).

WhitetailCrabs - Backcross Bred Disease Resistant Apple Trees				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Liberty Apple	Highly Resistant	Highly Resistant	Highly Resistant	Highly Resistant
Enterprise Apple	Highly Resistant	Highly Resistant	Mod. Resistance	Highly Resistant

I like Enterprise for its later dropping habit. It is widely available, but not at the WhitetailCrabs' extraordinarily low price point.

WhitetailCrabs - Cross Bred Disease Resistant Apple Trees				
Name	Apple Scab	Fire Blight	Powdery Mildew	Cedar Rust
Redfield Apple	Disease Resistant (WhitetailCrabs)			
Whitney Crabapple	Good Resistance	Good Resistance	No Information	No Information

Redfield is especially interesting to me because the fruit ripens later and because the bright pink blossoms qualify it as an ornamental.

**Century Farm Orchards** (Zone 7a) grows a very wide selection of “heirloom” apple trees that are better known in the southern and mid-atlantic areas, including Appalachia. This grower also offers several of the backcross bred all stars. The inventory of potentially available trees is voluminous and somewhat unique to that area. I have corresponded with the owner/operator David Vernon a bit and found him to be very generous with his time and expertise. If he is that generous with his time to someone who had yet to place an order I imagine his trees are probably very well cared for. The location of the nursery probably also affords a longer growing season that might result in larger, more developed plants.

The Century Farm Orchards website does not indicate a cold hardiness rating for the trees listed. Most, I gather, are sold in the region, kind of negating that particular concern. My subsequent research indicated that there is very little in the way of information concerning the cold hardiness ratings for these apple trees available anywhere. The orchard is located in hardiness zone 7a, so it is probably safe to assume the trees are likely appropriate for zones 6, 7 and probably into zone 8. There are indications that many might do fine even as far north as zone 5. The website has a “wildlife planting” tab that helpfully suggests trees sorted by ripe periods with notations indicating especially disease resistant varieties. I suspect some varieties that are more common in the south might also work further north than they are typically planted. The rationale for my suspicion is based upon the supposition that even if they didn't fully ripen (necessary for human consumption but not for whitetails) they would drop very very late. I strongly suspect that nutritionally deprived northern whitetails would be thrilled to eat some under ripened fruit in November, December, and January.

Century Farm Orchards - Disease Resistant Wildlife Apple Trees			
Yellow June	Bevan's Favorite	Aunt Rachel	Mary Reid
Horse	Hunge	King David	Hewes Crab
Grimes Golden	Rebel	Little Benny	Roxbury Russet
Magnum Bonum	Sweetnin	Stayman	Blacktwig
Hopples A. Gold	Florina	Ashmead's Kernel	Kinnaird's Choice
Enterprise	Gragg	Dula Beauty	Royal Limbertwig
Am. Gold Russet	Virginia Beauty	Virginia Gold	Joseph's
Goldrush	Virginia Winesap	Pineapple	O.F. Winesap
Arkansas Black	Johnson Keeper	Perkins	Sparger
Nickajack	Newtown Pippin	Terry Winter	Yates
Rockingham Red	Ralls Janet	O. F. Limbertwig	Mattamuskeet
Keener Seedling			

There are a few nurseries that are not specifically dedicated to providing trees intended for wildlife that are worthy of profiling due to the fact that they sell a good selection of disease resistant trees.

**Cummins Nursery** (Zone 6a) has one of the widest selection of apple trees I have come across. I have noted over 50 trees potentially available from this grower that are disease resistant enough to be used in a low maintenance situation. It has the most informative and user friendly website I have encountered. The website has a filter option that will eliminate all but disease resistant options. It will further allow filtering by specific disease. For each and every tree there is extensive relevant information provided including disease resistance ratings that appear to be influenced by their particular experience to some degree. Unfortunately, in my experience only rarely are the trees I'm after available on standard rootstock. Even trees grafted to semi-standard rootstock can be hard to obtain in many instances. It seems that many trees are sold out at any given time. I have learned to place my orders as early as possible with all growers, but especially early with Cummins. It appears that more than a year in advance of planting may be recommended. In some instances Cummins Nursery may be the only source for a particular tree. I am aiming to plant at least one of every relatively disease resistant and later dropping apple tree I can identify. Cummins Nursery is where I go to get trees not available elsewhere. For example: I was able to obtain Campfield on full size standard rootstock from Cummins. I'm looking forward to planting my first trees from this grower in the spring of 2025.

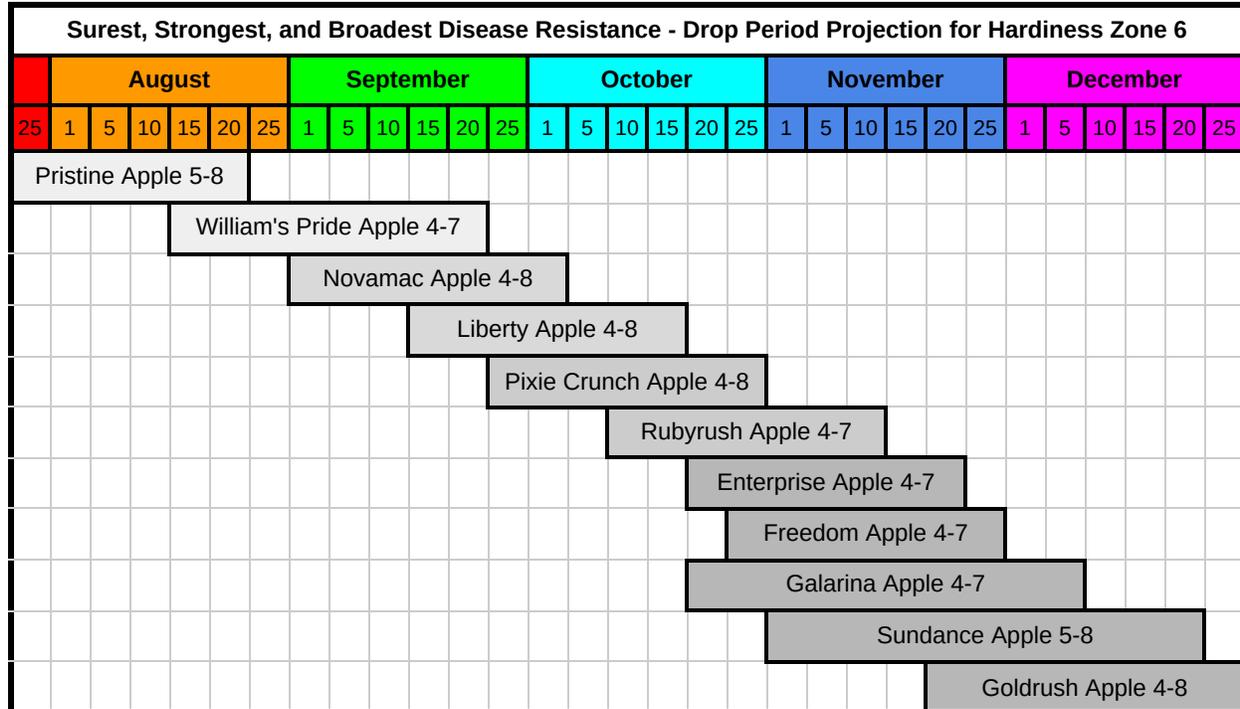
**Mehrabyan Nursery** (Zone 6a) offers a very good selection of disease resistant apple trees. I have noted about 25 that I believe are potentially suitable for a low maintenance situation. While other nurseries may offer some of the same trees, Mehrabyan's pricing and availability is often superior in my limited experience. The trees are generally available grafted to semi-standard rootstock, which is less than ideal but acceptable in my view. I buried the grafts on my 2024 order so that the trees would eventually grow on their own roots. The plants I received from this grower were more than satisfactory. Each year the inventory is updated in September.

**Grandpa's Orchard** (Zone 6b) inventory of apple trees includes nearly 40 apple trees on their "disease resistant" page, some of them are not available elsewhere. For example: the newer "resista" lineup. "Rezista fruit varieties, which were bred in Europe recently, are unique for their disease resistances and tolerances for many of the most common apple diseases, including apple scab, mildew, fire blight, and bacterial canker. In some varieties, apple scab resistance is provided by multiple genes, which offer much improved and longer lasting resistance to apple scab. Most current "scab-resistant" apple varieties rely on a single gene to provide resistance. Research in Europe has shown that scab resistance provided by a single gene can be overcome by mutations in the strains of apple scab present in a grower's orchard."

**Roots to Fruits** (Zone 4b) carries a very good selection of disease resistant trees. I have noted about 30 that I think are potentially suitable for a low maintenance situation. The website has a filter option that will eliminate all but disease resistant options. Some, but not all, of the most disease resistant are available full size standard rootstock. This source offers a few trees that are difficult or impossible to obtain elsewhere.

**Morse Nursery** (Zone 5b) has a few very disease resistant apple trees, a couple that are hard to find elsewhere. I find Jonafree especially interesting for its especially long drawn out drop period. I purchased a few trees from Morse in 2024 and was pleased with the plants I received.

My first selection criteria for an apple tree is disease resistance. My second is the drop period. Fortunately, there is a wide variety of disease resistant trees with variable drop periods. The chart below demonstrates that a drop period spanning at least five months can be achieved utilizing only trees with the broadest, strongest, and most reliable disease resistance.



Dolgo Crabapple has a very good disease resistance profile and is one of the very few that tends to grow "true to seed". It can be propagated directly from seed which eliminates the need to be grafted onto rootstock. Bare-root Dolgo Crabapple seedlings can be purchased from Chief River Nursery for about 25% of the cost of grafted trees. I utilize Dolgo Crabapple to cover what I describe as the central mast season which permits me to use most of my budget to acquire later dropping trees.



My favorite disease resistant apple/applecrab/crabapple trees drop their fruit later: Goldrush, Sundance, Keener Seedling, Galarina, Big Lou, Campfield, Black Oxford, Redfield, Sweet November, Yates, Winecrisp, Buckman, Lockdown, Peak Attraction, Swamp Donkey, Big Ten, Nova Spy, Chieftain, Joseph's, Kerr, Roadkill, Freedom, Enterprise, Turning Point, Big Dog, Primetime, Snowsweet, Claygate Pearmain, Hudson's Golden Gem, Old Fashioned Limbertwig, Droptine, Rubyrush, Big Ten, Franklin, Harrison, Holy, Courthouse, Sauk River, No Bull, Ed's Crazy, Callaway, Gilpin, Number Five, Candy, Grimes Golden, Bramley's Seedling, Bonkers, Nickajack, Smith's, Old Fashioned Limbertwig, Caney Fork Limbertwig, Mattamuskeet

The science of applying disease resistant ratings to apple trees appears to be neither precise, nor settled. Inconsistencies abound. Terminology is inconsistent. The scientific studies findings do not all agree. There is, however, a general consensus regarding most ratings. This exposition has attempted to represent the consensus, saving the reader a lot of time and tedious research.

Sources used for discovering or confirming apple disease resistance:

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2. Database Of Apple Diseases, Cornell University
3. Cummins Nursery Website
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6. Home Orchards: Table 4.1. Scab-resistant Apple Varieties, Penn State Extension
7. Disease Resistant Apple Cultivars, University of Missouri Extension
8. Scab-immune apple varieties are worth a try, Michigan State University Extension
9. Apple Cultivars: Scab Resistance Selections, Penn State Extension
10. Scab-resistant Cultivars (Varieties), NYSAES, Cornell University Geneva, NY
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13. Penn State Tree Fruit Production Guide
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17. What are some disease resistant apple cultivars to grow in Iowa? Iowa State University
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23. Table of Apple Cultivar Susceptibility to Cedar-Apple Rust, Cooperative Extension
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25. Fire blight susceptibility of apple cultivars, WSU
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33. Scab resistant apples, Wafler Nursery
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35. Trees of Antiquity Website