



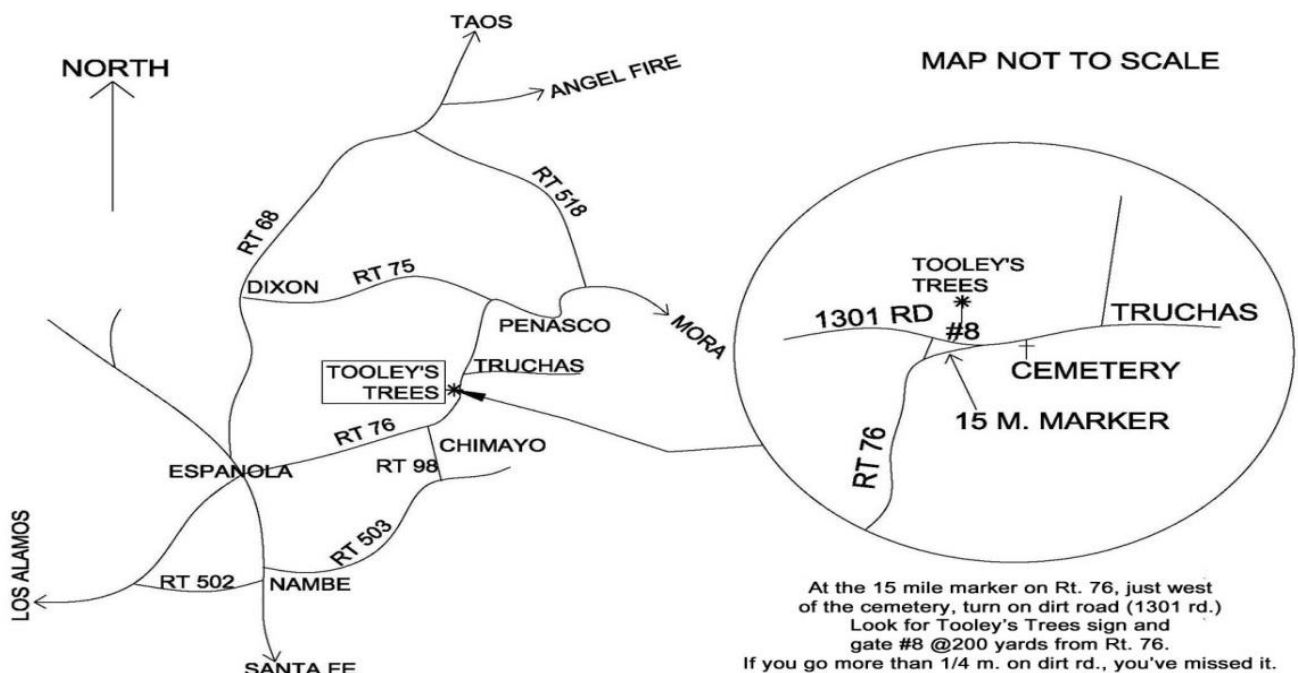
[www.tooleystrees.com](http://www.tooleystrees.com)

## 2023 FALL CATALOG

THIS IS IT FOLKS! WE'RE CLOSING THE NURSERY ON OCTOBER 1!  
 We offer a unique alternative to large commercial growers at great prices.

Quality Beauty Toughness

SUPPORT LOCAL AGRICULTURE



TOOLEY'S TREES & KEYLINE DESIGN  
P.O.BOX 392 1301 RD. #8  
TRUCHAS, NM 87578  
(505) 689-2400 E-mail: tooleystrees@gmail.com  
NM Nursery License # 6241  
www.tooleystrees.com

Tooley's Trees is a retail and wholesale nursery in Truchas, NM, on the highroad between Santa Fe and Taos, at 7,960'. Focusing on varieties that are drought tolerant and adapted to high pH, we grow species trees, shrubs, and grafted fruits. We grow our trees and shrubs in native soil contained in fabric bags and rootmaker pots. Our stock is grown with organic methods and we practice holistic orchard management. These practices are time consuming and labor intensive, but result in healthier plants, soils, water quality and beneficial insect populations.

We have a limited selection of heirloom and uncommon varieties of grafted apples and pears this fall. Some of them may be new to you but are an opportunity for you to grow varieties that have all but disappeared from our markets. Our grafts are on rootstocks carefully selected to match climate and soil types in this area. Our species trees and shrubs are easy to care for and will provide screening, habitat and food for wildlife and yourself.

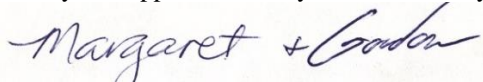
Fruit trees are cultivated plants. They need regular water as well as protection from predators large(cows, horses, deer, elk, bear...)and small(rabbits, gophers, mice, voles...) Drought tolerant means just that. It doesn't mean trees will thrive without irrigation.

We believe in selling small caliper trees with well-developed root systems. The fabric root bags we plant in are key factors in building a fibrous root structure. Smaller caliper trees establish more quickly with less transplant shock, and grow more vigorously in difficult sites than large caliper trees.

All our plants are healthy and true to name. Their survivability depends on their care once they leave this farm. No other warranties are implied. But if you have questions, please contact us by phone or email.

We're not retiring, but are ready to focus on keyline design and land imprinting, and taking care of our own orchard and farm.

Thank you for your support over the years, and for buying local,



Gordon Tooley and Margaret Yancey

HOURS FOR RETAIL SALES:

Fridays, Saturdays and Sundays from 8-5, September 8 through October 1, unless we sell out sooner.

DISCOUNTED PRICES! WE ARE CLOSING THE NURSERY ON OCTOBER 1!

WE DO NOT ACCEPT CREDIT CARDS. CASH OR CHECK ONLY PLEASE

### **TREE AND SHRUB PLANTING GUIDELINES**

*The most common reasons for plant failure are planting too deep and over amending the soil.*

### **THE ADVANTAGES OF FABRIC ROOT BAGS**

- Plants grown in fabric bags are healthier and grow faster than plastic container grown stock.
- Containers are more susceptible to problems of inadequate or excess water and fertilizer.
- Roots often circle in pots.
- Plants grown in root control/rootmaker bags have fibrous roots.
- The tough fabric of the bag prunes the root structure so shock is reduced when the tree or shrub is transplanted.
- 90% of the plant's root structure remains intact in the bag.
- Traditional field digging can cut away too much of the root structure.
- At the nursery it is easier to keep bagged stock from drying out or tipping over than containerized stock.

### **INSTRUCTIONS FOR PLANTING FROM ROOT BAGS**

Remove the bag before planting the tree.

Cut the fabric from top to bottom and peel it away.

Occasional roots may be caught in the fabric – cut these with hand pruners.

Do not jerk the fabric away from the root ball.

### **SITE PREPARATION**

Dig shallow planting holes two to three times as wide as the root ball. Wide, shallow holes encourage horizontal root growth that trees and shrubs naturally produce. Trunk flare should not be below grade. In well-drained soil, dig holes no deeper than the trunk flare. In poorly-drained clay soil, dig holes two to four inches shallower so that trunk flare is higher than grade. This will help prevent crown rot.

Don't dig holes deeper than trunk flare or put loose soil beneath roots, because loose soil will settle over time, leaving trees and shrubs planted too deep. Widen holes near the soil surface where most root growth occurs. Score walls of machine-dug (auger, backhoe) holes to remove glazing.

Backfill holes with existing unamended soil. **Do not incorporate organic matter into backfill for individual planting holes.** This can cause problems with water movement and root growth between the root ball, planting hole, and surrounding soil. Backfill with soil, then water thoroughly to settle out air pockets. Then water again. Cover any exposed root ball tops with mulch, but keep the

mulch 2" away from the trunk flare. Spread any soil amendments you like to use around the tree on the surface of the soil, under the mulch. Soil builds from the top down so the amendments will do your plants more good spread in a wide area than dumped in the planting hole.

### **TREE CARE AFTER PLANTING**

Remove tags and labels from trees and shrubs to prevent girdling branches and trunks. Make a map of planted area.

Good follow-up watering helps promote root growth. Drip irrigation systems and water reservoir devices facilitate efficient watering. Mulch, but don't over mulch, newly planted trees and shrubs. Two to three inches of mulch is best; less if a fine material, more if coarse.

Keep mulch from touching tree trunks and shrub stems. This prevents disease, insect and rodent problems if using organic mulches, and bark abrasion if using inorganic mulches.

Don't use black plastic beneath mulch around trees and shrubs because it blocks air and water exchange.

Only stake trees with large crowns or those situated on windy sites or where people may push them over. Stake for a maximum of one year. Allow trees a slight amount of flex rather than holding them rigidly in place. Use guying or attaching material that won't damage the bark such as wide cloth straps. Wrap the strap once around the trunk at half the height. Use 2 wood stakes, not metal. To prevent trunk girdling, remove all guying material after one year.

Most trees should not have their trunks wrapped. Wrapping often increases insect, disease, and water damage to trunks.

### **\*\*\*VERY IMPORTANT PROTECTION FOR YOUR TREES\*\*\***

For protection against small animals or equipment damage, install guards or a circle of 1/4" hardware mesh fencing to protect the trunk. Be sure the guards or mesh are loose-fitting and permit air circulation. Remove plastic guards in spring.

For protection against larger animals (like deer) install a large ring of field fencing to keep the animals from nibbling at the leaves and young branches.

### **TREE PRUNING**

Pruning is a very intuitive process. "Touch Trees". Feel that trees are living organisms; get to know your subjects. They all have different growth patterns to observe. Work with the natural form the trees possess.

Be a good investigator, take your time, pay attention to details, do a good job, educate yourself.

#### **Why to Prune**

- Control size and develop strong tree structure
- Reinvigorate old wood to productive wood
- Decrease vigor, issue new responses at cut site
- Increase fruit spurs and thin fruiting wood
- Open up canopy for better light penetration and air circulation
- Remove weak crotch angles
- Remove competing branches
- Remove co-dominate branching, crossing, and dead branches
- Remove interior non fruiting and marginal fruit sites( fruit spurs growing below branches)
- No sealers or paint on any cut surface ever
- Pruning influences fruit quality and balances vegetative growth with fruit load
- General Rules
  - Never remove a branch or twig without having a reason to do so.
  - Don't remove lower branches too early, lower branches aid in trunk flair, good anchorage, and branch development
  - Seedling trees usually need less or very little pruning to maintain a natural habit
  - Clonal rootstock tend to need more maintenance due to tendencies to produce more branches that want to grow vertical
  - Spur types need very little training, thinning, or heading
  - Pruning is a dwarfing process, increases vegetative growth, stimulates wood replacement, and reinvigorates tired, low productive wood
  - Pruning reduces yield, removal of wood with flower buds reduces potential fruit,
    - Yields are less but quality is improved by size.
    - Weight load to scaffold is reduced- especially important in young trees
  - Never top an established tree to lower size!
  - Pay attention to natural tree shapes, try to work with what the tree wants to do.
  - In most cases you can follow up with pruning that complements natural branching rather than making them do what they may not want to do.
  - Tool hygiene; clean, sharp, keep off the ground, wipe or spray with 90 percent alcohol, approved bactericides and fungicides, or 5% bleach and water
  - Cut or chip the cut branches and twigs into small pieces to create Ramial wood mulch. Remove all diseased wood.

#### **Types of Cuts**

Pruning is: thinning, heading, bench cuts, notching to increase or decrease bud vigor

- Thinning cuts: removal of competing branches and twigs, opens up light and air

- Heading cuts: reduce apical dominance, reduce length, control height and width, send new vigor to the next 3 to 5 buds below the cut to direct growth to spurs
- Never make flush cuts, they callus improperly and increase decay surface area
- Avoid stub cuts, final cuts should be at collar or branch bark ridge

### **Timing of Pruning**

- Things that flower first, get pruned last; late in the dormant season or very early in the spring before bud break
- Heavy pruning in the growth flush, and before leaf drop in the fall should be avoided
- No more than ¼ of the trees canopy should be removed per season
- Young trees can respond to heavy pruning better than established trees
- Trees don't heal, they seal. Cutting wood at any time stimulates cell activity at the cut site to compartmentalize cell walls to seal out infection
- Early winter pruning can cause winter damage and interrupt dormancy clock, even causes some species to break bud too soon. It should be avoided.

### **Dormant Season Pruning**

- Dormant pruning stimulates wood replacement, don't remove a branch unless you have a reason and make yourself aware of the response the tree will make at that site
- Very late winter or early spring is the preferred time to prune. This can aid in preventing premature bud break, fruit loss, and winter damage.
- Pruning delays fruiting, unpruned trees will flower and fruit sooner
- One to four year old trees should not be pruned too much in winter for these reasons
- Stone fruits (apricots, plums, cherries, peaches, nectarines) sometimes experience limb die back or gummosis caused by the fungus Eutypa lata or Cytosporina. It is safer to prune these in early summer during periods of low humidity.

### **Summer Pruning**

- Summer pruning encourages spur formation and can lessen water sprout competition in trees that are heavily pruned or have an umbrella formation
- Summer pruning reduces canopy and root growth due to loss of leaf surface, can affect trunk flair and retard vigor in young trees, and delay fruiting
- Summer pruning stiffens branches so use caution when pruning narrow crotch angles that will eventually be pushed out with limb spreaders, since this can cause included bark which is more prone to splitting
- One to four year old trees should not be pruned too much in summer for these reasons
- Summer pruning can help bring biennial croppers into a more annual cycle
- Summer pruning is preferred for stone fruits

### **ADDITIONAL RESOURCES**

'The Apple Grower', 'Mycorrhizal Planet' or 'The Holistic Orchard'- Michael Phillips. We encourage everyone to read these. They cover all aspects of tree care, healthy orchards and wildlife habitat. Also check out and support: [www.GrowOrganicApples.com](http://www.GrowOrganicApples.com) for a wealth of helpful information- not just on apples.

Alex Shigo – Anything he published

'Physiology of pruning fruit trees'- publication number 422-025, Virginia Tech cooperative extension

Cornell Cooperative extension publication #112

NMSU cooperative extension bulletins

'Encyclopedia of Organic Growing'- Rodale press

'The Pruning Book' or 'Grow Fruit Naturally' Lee Reich

'Organic Orchardng'- Gene Logston

'Fruit, Berry and Nut Inventory' Seed Savers Exchange

'Growing Food in the Southwest Mountains' Lisa Rayner

'Will Bonsall's Essential Guide to Radical, Self-Reliant Gardening' Will Bonsall

'Call of the Reed Warbler' Charles Massy

For more information on tree planting, look at the International Society of Arboriculture's website:

<http://www.treesaregood.org/treeowner/plantingtree.aspx>

## SPECIES TREES & SHRUBS

### ***Acer tataricum*/Tatarian Maple**

Zone 3. 15'-20'. Width comparable to height. A large multi-stemmed shrub or a small rounded wide-spreading tree. Dark green in summer, yellow and red in fall. Tolerant of adverse conditions including drought and high pH. Good where a small tree is desired. Local beekeepers tell us that the bees love its early season flowers.

### ***Amelanchier alnifolia*/Saskatoon Serviceberry**

Edible berries that look and taste similar to blueberries. Small tree 10 to 18 ft. Produces many suckers. Pretty white flowers in early spring. Adaptable to moist or dry or alkaline soils. Hardy to Zone 4-5.

### ***Picea pungens*/Colorado Spruce & *Picea pungens glauca* /Colorado Blue Spruce**

To 100', Zone 2. Foliage bluish-green or silver. Broad dense narrow pyramid with horizontal stiff branches to the ground. Is more drought tolerant than other *Picea*. Native to the southwestern states.

### ***Pinus flexilis*/Limber Pine**

To 60'. Zone 2. Young trees conical becoming rounded with age. Bark dark gray, deeply furrowed with age. Native range from Alberta to Texas. Five needles per cluster, densely crowded on the ends of branchlets, pointing forward, dark green to a slight glaucous dark green. Very adaptable species. The seeds of Limber Pine are large enough to be of value as food.

### ***Pinus ponderosa*/Ponderosa Pine**

60'-100'. Zones 3 to 6. Narrow, pyramidal when young, with time develops an irregularly cylindrical and narrow crown with numerous short stout branches. Prefers well drained soil, sunny, open exposure, intolerant of shade, resistant to drought, tolerates alkaline soils.

### ***Populus x acuminata*/Lanceleaf Cottonwood**

25' to 45'. Zone 3. Upright form with broad spreading crown. Introduced into cultivation in late 1800's. Good alternative to Aspens for lower elevations. Greenish, yellowish bark. Fairly fast growing, hardy, cottonless shade tree.

### ***Populus tremuloides*/Quaking Aspen**

To 50', Zone 2. Beautiful, fast growing native tree. Extremely cold hardy. Green, heart-shaped leaves flutter in the slightest breeze. Brilliant yellow, rarely red fall color.

### ***Prunus armeniaca mandshurica*/Manchurian Apricot**

10'-12', Zone 2. Compact, bushlike tree. Pinkish-white, frost resistant blossoms appear in early spring before the glossy green foliage. Vigorous, thrives almost anywhere. Bears young and heavily. Self-fertile, but more fruitful in groups of two or three. Small, plump, golden yellow fruit. Sweet freestone flesh, good for fresh eating, preserves and drying. Cultivated in Manchuria since 2000 BC.

### ***Prunus virginiana*/Chokecherry**

20'-30', Zone 2. Small suckering tree or large shrub with oval crown. Flowers are white 3"-6" long racemes. The fruit is red, ripening to dark purple. The fruits can be used for making jams, jellies, sauces and wines. Good screening and habitat plant.

### ***Ribes rubrum*'Pink Champagne'/Pink Champagne Currant**

Zone 3-8. Red x white currant cross. Compact bush produces large clusters of light pink berries. Not as tart as red currants. Good for fresh eating, cooking and preserving. Resists mildew, rust and aphids. Easy to grow. Sun or part shade. Ripens in July.

### ***Ribes rubrum* /Red Lake Currant**

Zone 2-6. Compact clusters of red berries. Long stems for easy picking. Large ½" diameter berries. Excellent for jellies, preserves, tarts and muffins. Strong, vigorous, upright bush with dense foliage; 4'-6' tall and 2'-5' wide. Early bearing; produces fruit on two-year and older wood. Long ripening season; holds well on the bushes. Productive in partial shade. Excellent bird forage and windbreak plant. Ripens during July.

### ***Rosa rubiginosa* (also known as *eglanteria*)/Sweetbrier Rose.**

6', Zone 4. Erect with unequal hooked prickles. Rose pink single flowers. Sweet spicy apple scented foliage. A pleasant vigorous informal hedge.

### ***Rosa rubrifolia* (also known as *glauca*)/Red-leaf Rose**

5'-7', Zone 2. High erect cane shrub of good density. Beautiful purplish hue. Canes covered with a purplish bloom, armed with small prickles. Flowers single clear pink, hips are red. Fine shrub border. One of the hardiest of roses.

### ***Sambucus nigra*/Samyl Black Elderberry**

Zones 3-8. This variety will provide good cross-pollination when paired with the Samdal or another *S. nigra* cultivar. Samyl has particularly high-quality flowers.

### ***Symphytum x uplandicum*/ Comfrey**

Typically grown in borders and shade gardens for its attractive foliage and Virginia bluebell-like spring flowers. Commonly known as Russian comfrey, a naturally occurring hybrid, typically grows in an upright clump to 18-24" tall. From pinkish buds, flowers open up rose but mature to purple. Comfrey has been grown in medicinal herb gardens for several centuries for the purported healing properties of the leaves and roots when applied as a poultice to inflammations and wounds. It is also a dynamic accumulator which

gathers minerals or nutrients from the soil and stores them in a more bioavailable form and in high concentration in their tissues, then can be used as fertilizer or to improve mulch. **LEAVES ARE POISONOUS IF INGESTED.**

### **GRAFTED APPLES**

We try to have a large selection of heirloom and newly developed grafted apples to offer you. We do much of the grafting here on the farm and select rootstocks and scion wood that should be productive in Southwestern soils and in this climate. These apples may be less well known, but merit attention in the trade. In addition to adding unique trees to your landscape, you help to preserve diversity and the unusual characteristics of these fruits by planting these trees. The majority of these apple trees are grafted on semi-dwarf rootstocks. These provide long lived semi-dwarf trees that are well anchored and perform well in most sites. EMLA 111 and Geneva 890 will generally produce 15'-18' trees. We also have some varieties on Standard rootstock; Malus Antanovka. Please enquire as they change from year to year. Mature tree size is a combination of the characteristics of the rootstock and the variety, as well as the quality of the soil and care given to the tree.

 Baking  Fresh eating  Processing  Cider  Storing

#### **Ben Davis Apple**

One of the parents of Cortland. Large, handsome, red and red striped fruit. Hard, coarse white flesh. Bruise resistant. Exceptional keeper, lasting until June or July. Good pollinator. Some disease resistance. Ripens late. Once called "mortgage lifter" for the income it generated by shipping barge loads on the Mississippi River to New Orleans for export. For many years following the Civil War, was the leading winter eating apple in the south central states. Hardy in zone 3. Originated in Arkansas in 1880. Our scions came from the orchards in Capitol Reef National Park.

#### **Brown's Apple**

Vintage English cider apple. Medium size, dark red fruit with crisp clean flavor. Often red staining in flesh. Makes a tangy, fruity cider. Tendency toward biennial bearing. Scab tolerant. Ripens in October. Hardy to -30 degrees F. Widely planted in Europe. Originated in south Devon in the early 1900s.

#### **Brown Snout Apple**

Cider variety that produces a sweet, slightly astringent juice and a mild to medium bittersweet cider. Small fruit with green to yellow skin color with patches of russet and a brown russet eye at the calyx end of the fruit. This distinctive brown eye is how the fruit got its name. Self fertile. Susceptible to fire blight. Ripens October to November depending on location. Discovered in 1850 in England.

#### **Claygate Pearmain Apple**

Good size, brown russeted fruit with beautiful splash of crimson in the sun. Crisp, juicy, yellowish flesh. Rich sugary flavor like the Ribston Pippin. Good keeper; excellent bearer. Ripens late. Zone 6. Fine old English apple found growing in a hedge in the hamlet of Claygate in Surrey before 1820.

#### **Crimson Beauty Apple**

Fameuse family. Red striped fruit. Juicy, white flesh. Nice tart flavor. Good for sauce and cooking. Productive, early bearing tree. Ripens very early, about 8-10 days ahead of Lodi. Hardy to -50 degrees F with occasional winter injury.

#### **Early Joe Apple**

Small, round fruit. Green-yellow skin striped and splashed with dark red. Crisp, juicy flesh. Rich pear-like flavor. Susceptible to scab. Ripens from August to September depending on location. Originated in New York around 1800.

#### **Lodi Apple**

Montgomery x Yellow Transparent. Extra early, large, green cooking apple. Larger, firmer and keeps longer than Yellow Transparent, does not get mealy as fast. Clear, yellow skin. Crisp, juicy, mildly subacid, white flesh. Sweet-tart flavor. Harvest for pies and sauce when full size. Fine white applesauce, great for early pies. For fresh eating, pick when partly yellow. Dependable, productive tree. Less alternate bearing if properly thinned. Resistant to apple scab. Requires cross-pollination. Ripens during July. Hardy in Zones 4-8 and to -45 degrees F. Produced by the New York Fruit Testing Association in 1911.

#### **Muscat de Dieppe Apple**

French bittersweet cider apple. Precocious, productive tree. Ripens mid-September(in England). Winter hardy.

#### **Northern Spy Apple**

Large, round, often flattened greenish yellow fruit flushed and striped pinkish red with a delicate bloom and occasional russet patches. Fine grained, rather firm, very tender, crisp, juicy yellowish flesh. Tart, aromatic sub-acid flavor. Excellent all purpose apple, good keeper. Very large, vigorous, productive, upright tree; tends to bear biennially. Blooms late Requires pollination. Ripens late October. Zone 3-9. Seedling discovered about 1800 in East Bloomfield, New York.

#### **Redfield Apple**

Highly unusual cross between Wolf River and Niedzwetzskayana red crab. Medium to large, waxy pink to red fruit. The deep red flesh is slightly dry, making it a superb baking apple. Produces an exceptional jelly or blood red cider or vinegar. High in pectin. Not a

fresh eating apple. Short storage life. Extremely hardy tree is disease and pest free. Heavy annual bearer. Highly ornamental with bronze leaves and red blossoms. Ripens in October. Zones 3-4. Developed at the New York Station, 1938.

### Summer Sweet Apple

Round –conic, yellow-green fruit with beautiful golden apricot-orange blush and occasional russet splash at the stem end. Yellow, firm flesh. Sweet distinctive flavor. Vigorous, upright, productive tree. Zones 4-6. Rare. Originated in Sidney, Maine about 1800.

### Sixteen Ounce, AKA Pound Sweet

Very large, amber to golden fruit when fully ripe. Fine eating, the very best when baked. Hardy, vigorous tree. Ripens from late September to early October. Developed in Connecticut. Introduced in 1834. Our scions came from the orchards in Capitol Reef National Park.

### Virginia Crabapple

AKA Hewes. Small fruit, 1.5". Dark green skin covered with dull, purple-red and many large white dots. Translucent, yellow flesh with strong, musky flavor. Produces a clear dry cider which is excellent on its own and used in cider blends. Productive tree is a good pollinator. Ripens September to October. Good keeper. Zones 3-7. Exact origin date is unknown. One hundred year old Hewes crab trees were discovered in Virginia in 1817.

## GRAFTED PEARS

### Clapp's Favorite Pear

Very large, elongated, long necked, lemon-yellow fruit with dull red cheek and russet specks. White flesh is high quality, fine grained, very sweet and highly flavored. Dessert and fresh eating pear that is also good for canning. Not a keeper. Should be picked when full size but still green; do not leave on the tree. Fruit will break down at the core if picked too late. Strong, sturdy, very hardy, vigorous tree. Susceptible to fire blight. Ripens early August. Annual bearer. Hardy to Zone 4.

### Comice Pear

Large, broad based, narrow necked, greenish yellow fruit with red blush and light russet. Rich, juicy, firm, sweet, finely textured flesh. Premium dessert pear. Too delicate for cooking. Needs a month of cool storage for good ripening. Large, very vigorous tree comes into bearing slowly. Erratic cropper. Requires cross pollination. Matures one month after Bartlett. 400-600 chill hours. Outstanding winter pear that originated in Angers, France around 1849.

### Magness Pear

Seckel x Comice. Medium sized pear ripening about a week after Bartlett. Skin is greenish brown, covered with light russet. Flesh is soft, juicy, and almost free of grit cells. Flavor is sweet and of excellent quality. Tree is vigorous, spreading, and very resistant to fire blight. Magness does not produce good pollen.

### Moonglow Pear

Comice seedling. Medium-large, dull yellow fruit, with pink blush. Mildly juicy, soft, white flesh with smooth texture. Excellent, mild flavor and almost no grit cells. Excellent for fresh use or canning. Stores well. Spur type tree is fire blight resistant. Requires pollination. Matures from early August to mid-September depending on location. Ripens to peak flavor in cool storage 10-15 days later. 500-700 chill hours. Zones 4-9. Developed by the USDA, 1960.

### Summercrisp Pear

Recognized for many years as the hardiest in the collection at the University of Minnesota Research Station. Free of fire blight. An annual bearer. Fruit is pyriform in shape, 2 ½ to 3" in diameter and 3 to 3 ½" long. Blooms early in May. The fruit should be harvested in mid-August when crisp and still green with a red blush. Fruit harvested at that time is sweet and crisp and may be stored up to two months. Zone 4.

## PRICES AND DELIVERY

All the grafted fruit trees listed in the catalog are available at this printing, although some quantities are very limited. We try to keep our website [www.tooleystrees.com](http://www.tooleystrees.com), up to date. Delivery is \$3.00 per loaded mile at this printing. Prices and availability subject to change. All plants are in fabric root bags.

WE DO NOT ACCEPT CREDIT CARDS. PAYMENT IN CASH OR CHECK ONLY PLEASE

Apple and pear tree prices: 1/2"-3/4" .	\$40
Stanley Plums	\$50

### Latin Name/Common Name

Acer tataricum/Tatarian Maple	\$27, 4 or more \$25 each
Amelanchier alnifolia/Serviceberry	\$27
Picea pungens/Blue Spruce or CO Spruce 7,10 gal	\$40
Picea pungens/Blue Spruce or CO Spruce 15 gal	\$60
Pinus flexilis/Limber Pine	\$60
Pinus ponderosa/Ponderosa Pine	\$48

Populus x acuminata/Lanceleaf Cottonwood	\$30, 4 or more \$25 each
Populus tremuloides/Quaking Aspen	\$56
Prunus armeniaca mandshurica/Manchurian Apricot	\$27
Prunus virginiana/Chokecherry	\$27
Ribes/ Currants	\$27, 4 or more \$25 each
Rosa sp	\$27
Sambucus nigra/Samyl Elderberry	\$27
Symphytum x uplandicum/Comfrey	\$19

### **The Basics of Keyline Planning**

The keyline design is unique to each property and will be formulated from evaluation of water movements over the land, with the idea of controlling and making use of this resource in the management of the land.

The keypoint occurs at the base of the steepest part of the slope in the center line of a valley. This is the fall line path that water currently follows.

The keyline of a valley is a contour line that runs through the keypoint. The ends of the keyline are where the contour changes direction from the valley to the ridge.

Water movement over the land and the land's features are directly related to each other, and water resources can only be used if they can be controlled.

Other factors such as climate, geology and rainfall patterns historically determined the land's topography. Controlling water is the main focus in keyline planning as this is one variable which can be manipulated.

### **Keyline Cultivation**

Once the keypoints and keylines have been identified, the control of water movement over the land can be achieved through a keyline pattern of cultivation.

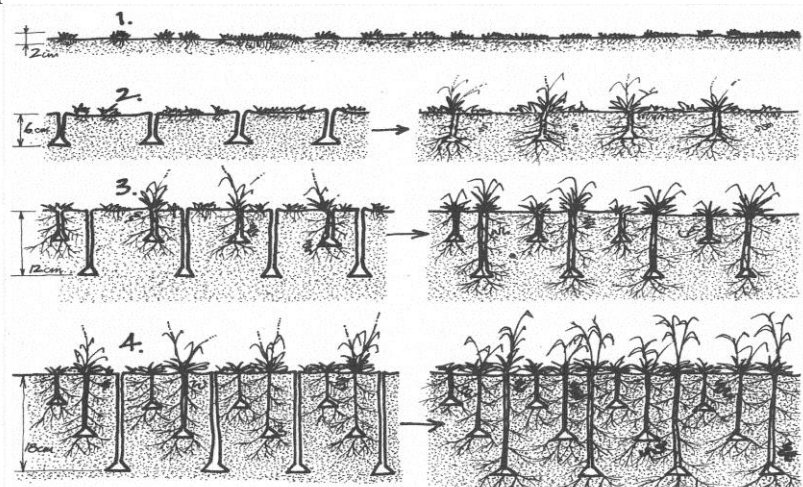


Figure 1. Soil development – mechanical method (Illustration adapted from the Permaculture; A Designers' Manual).

By cultivating parallel to identified keylines, both above and below the line, a cultivation pattern is developed which spreads the runoff evenly across the uplands and does not allow the water to follow its natural path and concentrate in the valleys. This aids in the stabilization of the valley and increases its ability to resist erosion.

### **The Long Term Benefits of Keyline Design**

- Build resiliency into permanent landscapes
- Improve infiltration of precipitation
- Increase moisture retention
- Support habitat by increasing diversity
- Improve perimeters
- Break up hard pan and compaction
- Improve root zone and capillary activity
- Encourage soil building and reduce loss through wind and water erosion
- Reduce salinity problems
- Increase soil productivity by increasing soil biology. Biologically fertile soil has better structure and reduces runoff
- Stabilize soils and perimeters

### **Description of Tools Used**

New Holland TM 175 Tractor and Yeomans plow with 5 26" shanks, coulters, crumble roller and 5 shank pot seeders and cyclone seeder for cover crops. A laser level will be used to locate keypoints and keylines.



Truax No Till Drill with 3 seed boxes to meter fluffy seed, large or heavy seed and tiny seed. 18 coulters incise the soil before the seed drops into 18 planter wheels. 18 packer wheels close the seeded openings making for good contact between seed and soil. The seed is effectively and efficiently metered with this tool which can also be used for interseeding to increase diversity in established grasslands. Dixon Imprinter and V Ditcher also available.