

Redacted Farm

Agroforestry Ideas

Summary of farm:

Redacted, owned by the *redacted* family for over 150 years, has witnessed significant changes, particularly in the last fifteen years. Recognizing the challenges faced by commercial dairy operations, they shifted focus, reducing their herd size and transitioning away from commercial dairy. Embracing direct marketing and the buy local movement, they diversified their offerings to include beef, poultry, eggs, and pork, catering to local protein needs. Now boasting a variety of offerings including dairy, beef, veal, poultry, and pork, their farm store has become a staple in the local community. Through self-distribution and partnerships with Upper Valley Produce, they've expanded their reach to co-ops and markets. With a commitment to humanely raised, growth hormone-free, all-natural, local products, they avoid synthetic fertilizers and prioritize rotational grazing. Building trust with local consumers, they maintain an open-door policy, valuing feedback and adjusting practices accordingly. They approach land management conscientiously, aiming to minimize negative impacts and prioritize sustainability for future generations and their community.

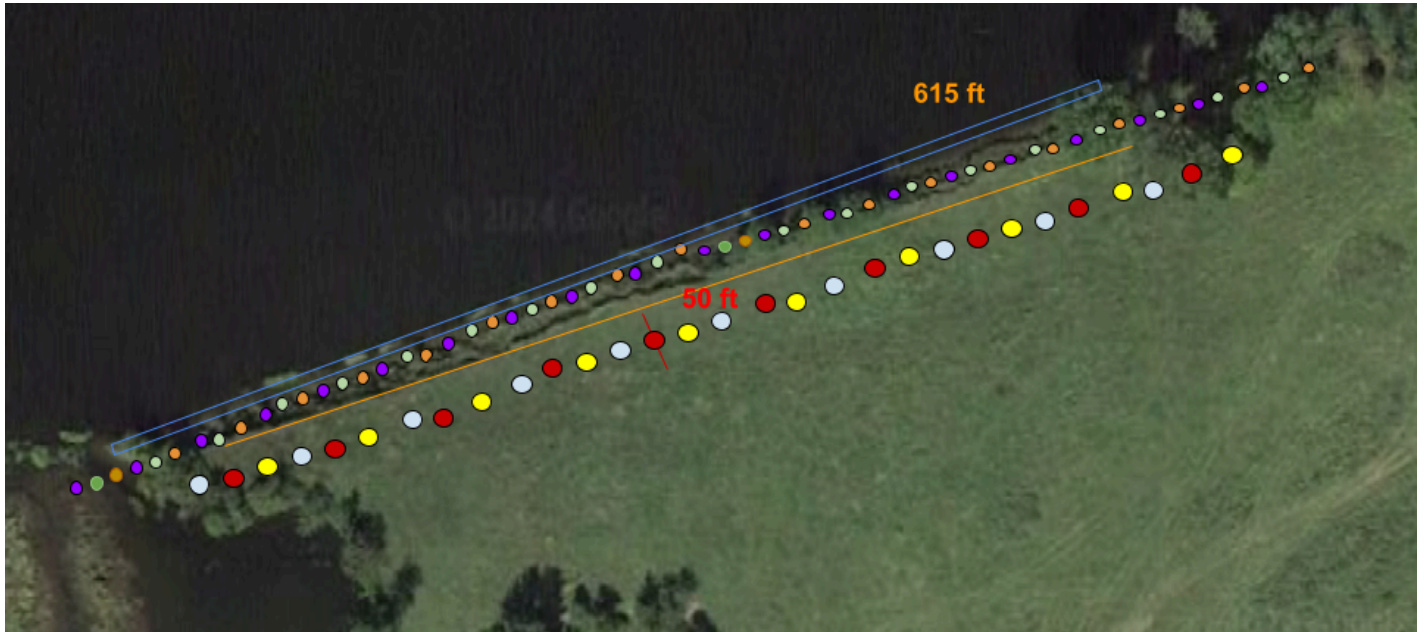
Objectives:

Design a diverse riparian area to enhance the ecological economic social, and cultural objectives of Robie Farms. This plan will play heavily into their wild food walks and enhance the long term sustainability of Robie Farms.

Primary objectives:

- **Enhance riparian buffer to prevent erosion, and hold the bank**, reduce the impact of upland sources of pollution by trapping, filtering and converting sediment, nutrients, and other chemicals, and to supply food, cover, and thermal protection to fish and other wildlife.
- **Plant diverse native, fruit and nut trees that can be utilized as part of Mark's wild food walks.**
- **Such diverse native trees must work within the design of the WHOLE farm, as at Robie Farms, everything has a place.**

Planting Area and Reference Diagrams:



Blue shape: Maintain natural vegetation

Front row: shrub planting with three different species for sixty (60) total planted 10-13 feet apart

- 20 aronia/dogwood alternate
- 20 hazelnut
- 20 elderberry

Back row: tree planting with three different species for (30 total) planted 20-25 feet apart

- 10 chinkapin oaks
- 10 buartnuts
- 10 hickories



Planning will also include 4 mountain ash, 4 hackberry, 2 honey locusts in side patch.

Plants we considered:

Here are some details about the species we discussed (fruiting age and height at maturity, considerations for planting, varieties, and pruning needs for relevant species).

Hazelnuts:

Fruiting age and height Hazelnuts are moderately fast growing deciduous multi suckering shrub that can reach 8 feet tall and can grow up to twenty feet tall if they hybridize with European variety (generally you will find American, European, filleberts and many crosses including with beak hazelnuts). As plants get older, the root sections will send out new suckers in a circle. It is suggested to plant them about 12-15 feet apart from one another. It takes 3-5 years generally for hazelnuts to fruit.

Planting: Hazelnuts have both male and female flowers on the same plant and catkins will be on branches all winter until small flowers open up in the early spring. They are wind pollinated, so often benefit from being planted in groups. As such, in spring, if temperatures are projected to drop below 20 degrees (F), you may want to cover the plants. As hazelnut branches age they eventually stop yielding nuts. American hazelnuts grow very well in many different soil types, including the wetter soils at your site—they actually prefer it and do well with lots of organic matter and will prefer compost as opposed to other fertilizers. They do best in moderately acidic soils, so if your soils are at 5.6 or below, applying lime will bring them to a more suitable acidity level. Some European varieties of hazelnuts carry Eastern filbert blight, but it's not a big problem for this area.

Pruning needs: These can be cut back to the ground to stimulate new growth.

Varieties: We offer a filbert, american, beek cross.

Elderberries:

Fruiting age and height: Elderberry is rapidly gaining popularity for its edible and medicinal qualities (of both flowers and fruits)! Plants should begin to produce two years after planting. Depending on the variety, elderberries grow five to ten feet tall and wide and have gray barked stems with white pithy centers. Groups of stems emerge from the roots and develop an arching and spreading habit.

Planting: Not very picky! They thrive on moist (not saturated), fertile sites with good sun. Incorporate manure or compost before planting. Plant elderberries 6-8 feet apart in rows 8-10 feet apart. Plant 2 inches deeper than grown in the nursery. Best to plant trees with roots (though they can reproduce from cuttings).

Varieties: Number of varieties of black elderberries, which are preferred for their flavor. These include: Nova, Adams, Berry Hill. We offer Nova.

Pruning needs: During the first two seasons, elderberry plants should be encouraged to grow vigorously with little to no pruning required. After the second year, pruning should be done annually in early spring. All dead, broken and weak canes should be removed.

Aronia:

Fruiting Age and Height: Aronia typically starts to produce fruit within 2 to 3 years after planting, although the yield may increase as the plant matures. Mature Aronia plants can reach heights of 3 to 8 feet, depending on the variety and growing conditions. Some cultivars may grow taller or remain more compact.

Planting Considerations: Aronia prefers well-drained, acidic soil with a pH between 4.5 and 6.5. It can tolerate a wide range of soil types, including sandy or clay soils. Choose a sunny or partially shaded location for planting Aronia. Full sun exposure generally results in better fruit production. Plant Aronia bushes in the spring or fall, spacing them about 4 to 6 feet apart to allow for adequate airflow and room for growth.. Once established, Aronia is relatively drought-tolerant.

Northeast Varieties: Several Aronia varieties are well-suited for growing in the Northeastern United States. We offer Viking, Known for its high yields and large, flavorful berries.

Pruning Needs: Aronia generally requires minimal pruning once established. Pruning can help maintain the shape of the plant, remove dead or diseased wood, and encourage new growth. Prune Aronia bushes in late winter or early spring while the plant is dormant. Remove any dead, damaged, or crossing branches.

Chinkapin oaks

Fruiting Age and Height: Chinkapin Oaks typically begin to produce acorns when they reach maturity, which can take anywhere from 20 to 40 years. Mature Chinkapin Oaks can reach heights of 40 to 60 feet, with a spread of 30 to 50 feet. They develop a rounded crown with age.

Planting Considerations: Chinkapin Oaks prefer well-drained soils and are somewhat tolerant of dry conditions once established. They grow best in full sun but can tolerate

partial shade. These trees are adaptable to a variety of soil types, including sandy, loamy, or clay soils, but they prefer slightly acidic to neutral pH levels.

Mountain ash:

Fruiting Age and Height: Mountain Ash trees typically start to produce fruit, known as berries, when they are around 3 to 5 years old, although this can vary depending on the specific species and growing conditions. Mature Mountain Ash trees vary in height depending on the species and variety, but they generally range from 15 to 40 feet tall.

Planting Considerations: Mountain Ash trees prefer well-drained soil with a slightly acidic to neutral pH. They can tolerate a wide range of soil types, including sandy, loamy, or clay soils. These trees thrive in full sun to partial shade, although they may produce more abundant fruit in full sun.

Northeast Varieties: We offer sorbus americana (American Mountain Ash):Native to the Northeast and known for its attractive clusters of red berries.

Pruning Needs: Mountain Ash trees generally require minimal pruning once established. Pruning is primarily done to remove dead, diseased, or crossing branches and to maintain the tree's shape.

Buartnuts

Fruiting Age and Height: Buartnuts typically start to produce nuts when they reach maturity, which can take around 5 to 7 years. Mature buartnut trees can vary in height depending on growing conditions and the specific cultivar, but they generally range from 20 to 40 feet tall.

Planting Considerations: Buartnuts prefer well-drained, fertile soil with a slightly acidic to neutral pH. They tolerate various soil types but thrive in loamy soil. Plant buartnut trees in a location with full sun exposure for optimal growth and nut production.

Mulberries

Fruiting Age and Height: Mulberry trees typically start to produce fruit when they are around 3 to 5 years old, although this can vary depending on the specific species and growing conditions. Mature mulberry trees can vary in height depending on the species and variety, but they generally range from 20 to 60 feet tall.

Planting Considerations: Mulberries prefer well-drained soil and full sun exposure for optimal growth and fruit production. However, they can tolerate a wide range of soil types and partial shade. Mulberries can have wide-spreading canopies, so they should be planted at least 15 to 20 feet from other trees. Mulberries are relatively drought-tolerant once established, but regular watering is essential, especially during the establishment phase.

Northeast Varieties: Several mulberry varieties are well-suited for growing in the Northeastern United States. We offer *Morus rubra* 'Red Mulberry' - Native to North America, it produces sweet, juicy fruit and is well-adapted to the region.

Hawthorns

Fruiting Age and Height: Hawthorns typically begin to produce fruit, known as haws, when they reach 3 to 5 years of age, although it can sometimes take longer depending on the variety and growing conditions. Mature hawthorn trees vary in height depending on the species and variety but generally range from 15 to 30 feet tall.

Planting Considerations: Hawthorns are adaptable trees that thrive in a variety of soil types, including loamy, sandy, or clay soils, as long as they are well-drained. They prefer full sun exposure but can tolerate partial shade.

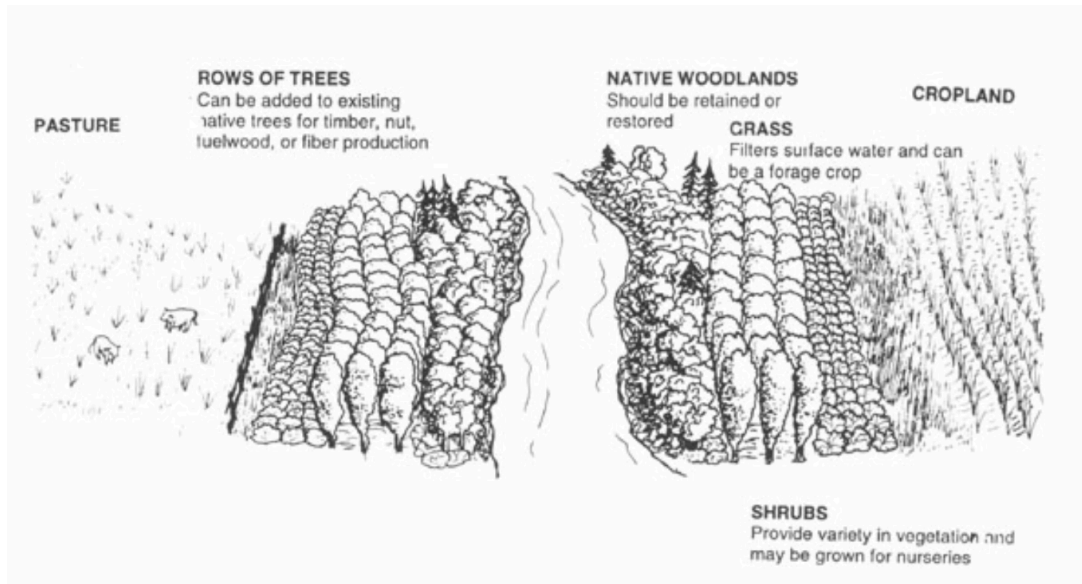
Northeast Varieties: Several hawthorn varieties are well-suited for growing in the Northeastern United States. Some popular cultivars include: 'Crimson Cloud' (*Crataegus laevigata* 'Crimson Cloud') - Appreciated for its deep pink flowers and abundant fruit production.

Hackberry

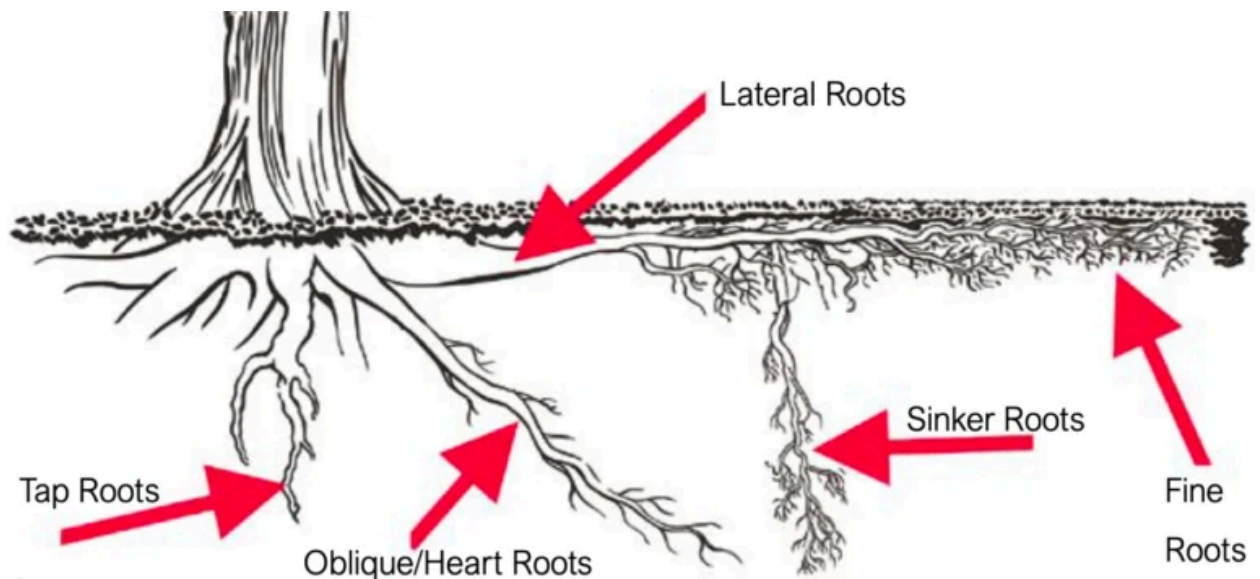
Fruiting Age and Height: Hackberry trees typically start to produce fruit when they reach around 10 to 20 years of age, although this can vary depending on growing conditions. Mature hackberry trees can reach heights of 40 to 60 feet, with a spread of 40 to 80 feet. They tend to have an irregular, rounded crown.

Planting Considerations: Hackberries are adaptable trees that can grow in a variety of soil types, including clay, loam, and sandy soils. They are also tolerant of both drought and wet conditions once established.

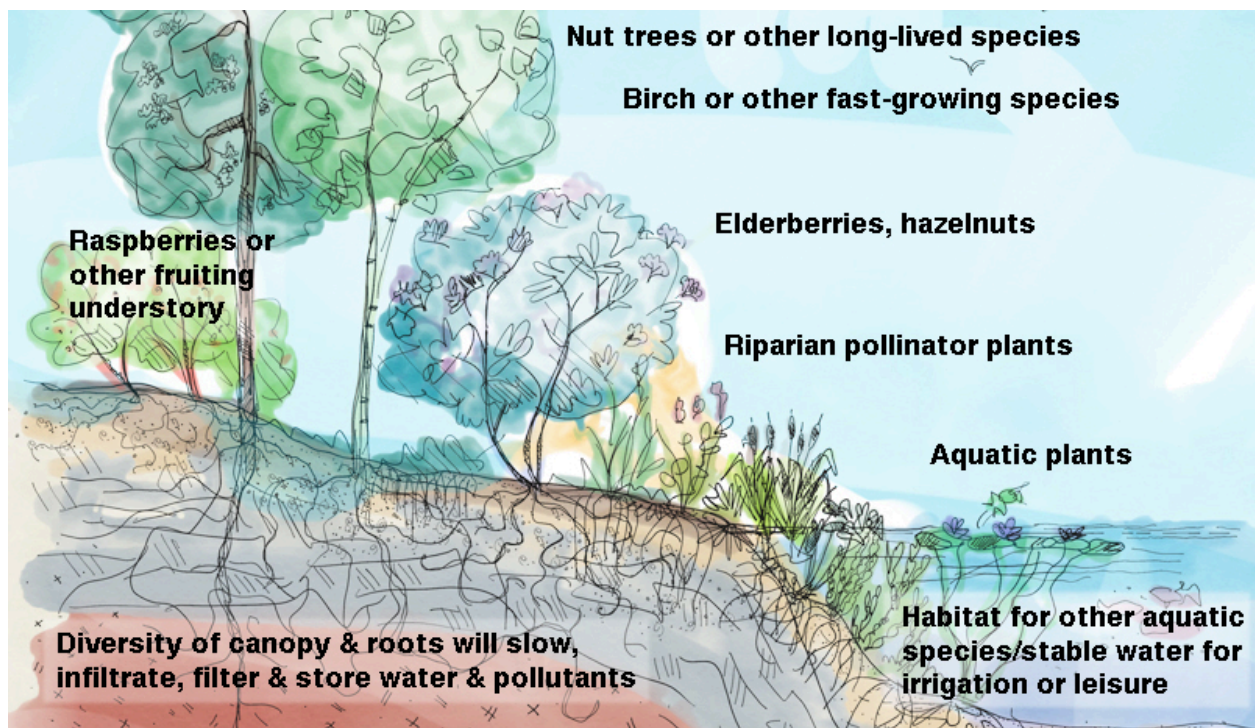
Reference diagram for intended services.



This diagram shows some of the desired benefits of a riparian buffer with some complexity.



This diagram shows some of the different rooting structures that having multiple different species together can foster to capture sediments, soil, etc.



This diagram shows the planting structure we're going for more or less.

Planting logistics:

If you could help us acquire some wood chips / compost to put around the plants for planting that would be very helpful!

Species we initially talked about (we can still consider adding in).

Hazelnuts, aronia, mountain ash (a couple), mulberry, hawthorn, bitternut hickory, shagbark*, spicebush*, heartnuts, buartnuts, 2 paper birch, 2 hackberry, Ginkgo bilboa (female and males).