EarthDance Permaculture Orchard Project Factsheet

About EarthDance

EarthDance Organic Farm School is a non-profit organization combining food production, agroecology education, and community development. EarthDance manages mixed vegetable, fruit, and livestock production on our 14 acre historic farm in Ferguson, Missouri, in a residential area in a close suburb of St. Louis while engaging all ages in programs on sustainable living, farming, and gardening.

Our farm site is designed with permaculture principles at the core. We have six acres in cultivation, hightunnels and a greenhouse, a 250+ tree mixed perennial orchard planted on berms and swales with annual crops alley-cropped between, along with pastured poultry, mushrooms, herbs, cut flowers, pasture, prairie, and mixed woodlot.

To learn more about EarthDance please visit us on the web at www.earthdancefarms.org, find us on Facebook, Twitter, Instagram, and Youtube, or take a tour!

Orchard Beginnings

In the fall 2014 and spring of 2015 EarthDance began planting pear trees with the help of a SARE Farmer/Rancher grant. In its grant application EarthDance outlined a plan to plant a sixty tree pear orchard. Following a period of continued research and reflection, EarthDance staff decided that planting a single area of the farm to only pear trees was not in line with the princiiples of organic farming or permaculture, such as"integrate rather than segregate" and "value diversity". With those ideas in mind, Farm Managers Matt Lebon and Monica Pless decided to integrate the pear trees into a much larger plan for establishing a diversity of tree crops planted throughout the farm.

How EarthDance Trees Were Uniquely Planted

Before laying out the trees, EarthDance

farmers established a system of swales and berms. A keyline design was utilized to site the swales. Keyline design is a technique for maximizing beneficial use of water resourceson a piece of land. The keyline refers to a specific topographic feature linked to water flow. Trees were planted into berms, which were mounded on the lower side of each corresponding swale.

Earthdance fruit trees were alley cropped throughout the growing fields in parallel rows 80ft apart. Alley Cropping is the planting of rows of trees at wide spacings with an annual crop grown in the alleyways between the rows. Plans to grow vegetables in the 75ft alleys will continue for the next several years. As the trees grow larger in size, the alleys will be narrowed.

To manage weeds around the trees, a heavy duty landscape fabric was laid on top of berms and around trees, after the trees were planted. While this method proved effective at minimizing weed pressure, it made for challenging cultivation next to the landscape fabric. To mitigate this pressure we recommend that a low growing perennial be planted alongside the landscape fabric. Presently, EarthDance cannot confidently recommend a suitable plant for achieving this end.

Several other tree species, all well adapted for organic production, were added to the pears in order to create a diverse polyculture of tree fruits. Those various trees were put in a repeating sequence so as to support the pollination needs of the trees and most effectively mitigate the spread of pests and disease.

The EarthDance sequence is:

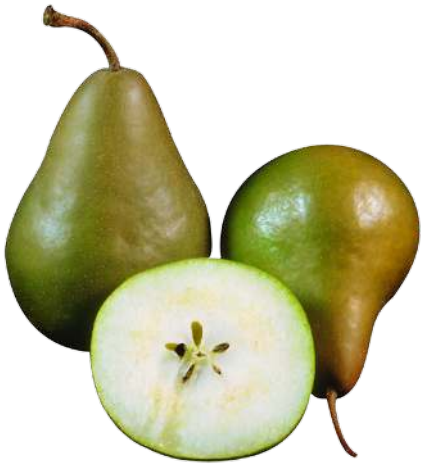
pear- pawpaw- pawpaw- pear- tart cherry- pear- plum- pear- pawpaw- pawpaw- juneberry- apple

Variety Selection

A lengthy research process informed not only the selection of the mentioned species but also the specific varieties.

EarthDance chose Asian and European varietals for crop diversity and market appeal. Asian pears were primarily **Shinko** and **Korean Giant(Olympic)**. These varieties were chosen due to their superior resistance to fireblight and also their marketability. Additional varieties of **Shinseiki** and **Chojuro** were added to increase pollen diversity and for their distinct flavor.

The European pears were primarily **Maxine, Potomac, Magness, Seckle, and Blake's Pride**. Similar to the Asian pears, these varieties were selected first for their high resistance to fireblight and for their marketability.



Pawpaws round out EarthDance's polyculture orchard. Pawpaws, known for being the largest fruit native to north america, have seen little attention from the farming community. Many may be familiar with pawpaws growing in the wild, which produce sparse and low yields. However, there are numerous cultivars that produce reliably and heavily. Both the Missouri Center for Agroforestry and Kentucky State University have published long term research about the promise of pawpaws. These studies demonstrate the pawpaw's

promise as an organic tree fruit. As a native tree, they have shown minimal pressure from pests and disease. Thus, roughly sixty pawpaws were planted at EarthDance as a specialty crop for farmers market and restaurants.

The additional species of Juneberry, Tart Cherry, Plum and Apple were chosen for their promise as potential organic fruit tree options as well. Much research was put into each variety with a focus on disease resistance. Juneberries were selected as they are a native with several named cultivars and produce sweet berries. Tart cherry and plum varieties were chosen for their early fruiting traits-- the hope being that they produce fruit prior the heavy disease pressure. Lastly, although apples are susceptible to numerous pests and diseases, the most resistant varieties were chosen: **Liberty**, **Enterprise**, **Florina**, **Pristine**, **Arkansas Black**, and **William's Pride**.

Many thanks to NCR-SARE for their support of EarthDance's poly-culture permaculture inspired orchard.

Tree Sources

Adams County Nursery

Stark Brothers

Burnt Ridge Raintree

One Green World

Sources:

Guy Ames, fruit specialist at ATTRA (https://attra.ncat.org/attra-pub/summaries/summary.php?pub=2)

Mark Shepard- New Forest Farm. (Book: Restoration Agriculture)

Stefan Sobkowiak- Miracle Farms. (Documentary Video- The Permaculture Orchard)

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www.earthdancefarms.org