

A Double Row System for Establishing Pecans

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One of the greatest deterrents to establishing a new pecan orchard is the long period of time it takes from tree planting to first commercial nut harvest. In our experience at the Pecan Experiment Field, an orchard must grow ten seasons before it produces enough nuts to warrant mechanical harvest. It seems to take about ten years regardless of the way the orchard was established—direct seeded, transplanted seedlings, or transplanted grafted trees.

A decade is a long time to wait for a crop to return a profit. This delay in cash flow has led several growers to experiment with planting intercrops between trees during the establishment years. Many agronomic crops have been used as intercrops between young pecan trees including soybeans, wheat, corn and milo. Hay crops have also been used including several clover/grass mixes.

One of the first problems growers face in planning a new orchard/intercrop system is deciding on the spacing for the trees. When pecan trees are the only consideration in orchard planning, I usually recommend a spacing of 35' by 35'. Adding an intercrop into the mix makes things a little bit more complicated. Growers planning to farm between tree rows start thinking about the width of common farm equipment and if it's possible to get a combine down between the trees rows. Row crop farmers often end up spacing their trees 50' by 50'. Wide spacing makes intercropping easier but seriously delays the onset for economically viable pecan yields.

Intercropping has one drawback often not considered when designing a planting plan. Planting a crop on both sides of a tree row makes it nearly impossible to access the trees for critical summertime tasks such as; tree training, grafting, weed control, insect control, and watering. Lack of care during the early years of tree growth can significantly stunt the entire tree planting, delaying on onset of commercial nut production.

During the Fall of 2002, we established a new block of pecan trees at the Pecan Experiment Field using an intercropping system that may offer a better compromise between trees and crops. We designed a double tree row planting plan (Fig. 1). Our objectives for this design were to:

1. plant enough trees/acre to ensure a commercial harvest by year ten.
2. provide adequate room for intercropping.
3. provide access to the trees at all times.

To lay out our planting, we started by marking tree rows 80' apart. Within each of these primary rows we spaced the trees 40' apart. To make the double rows, we planted second row of trees only 23' to the east of each primary row. The trees in the companion row were also spaced 40' apart but arranged in such a way that no tree within a double row was closer than 30' apart. (Fig. 1). For maximum sunlight exposure for our trees, we laid out the double rows in a north-south direction (Fig. 2) We used 'Colby' seedlings to establish this planting.

After all the trees were planted, we established a bluegrass/ perennial rye alley within the double row to allow access to our trees. Along each tree row, we use herbicides to keep a weed free strip about 6' wide. Between each set of double rows, we established 51' of intercrop (wheat, oats, soybeans). We grafted our seedling trees in the field at the beginning of the 3rd growing season (2005).

The double row system we developed met all of our objectives but sacrifices more land to trees than most traditional intercropping schemes. In our scheme, about 2/5 of the land area is devoted to trees and the grass alleyway, while 3/5 of the land area can be intercropped.

Figure 1. A double row planting plan for pecan orchards. Distances are in feet. Trees locations marked by circles.

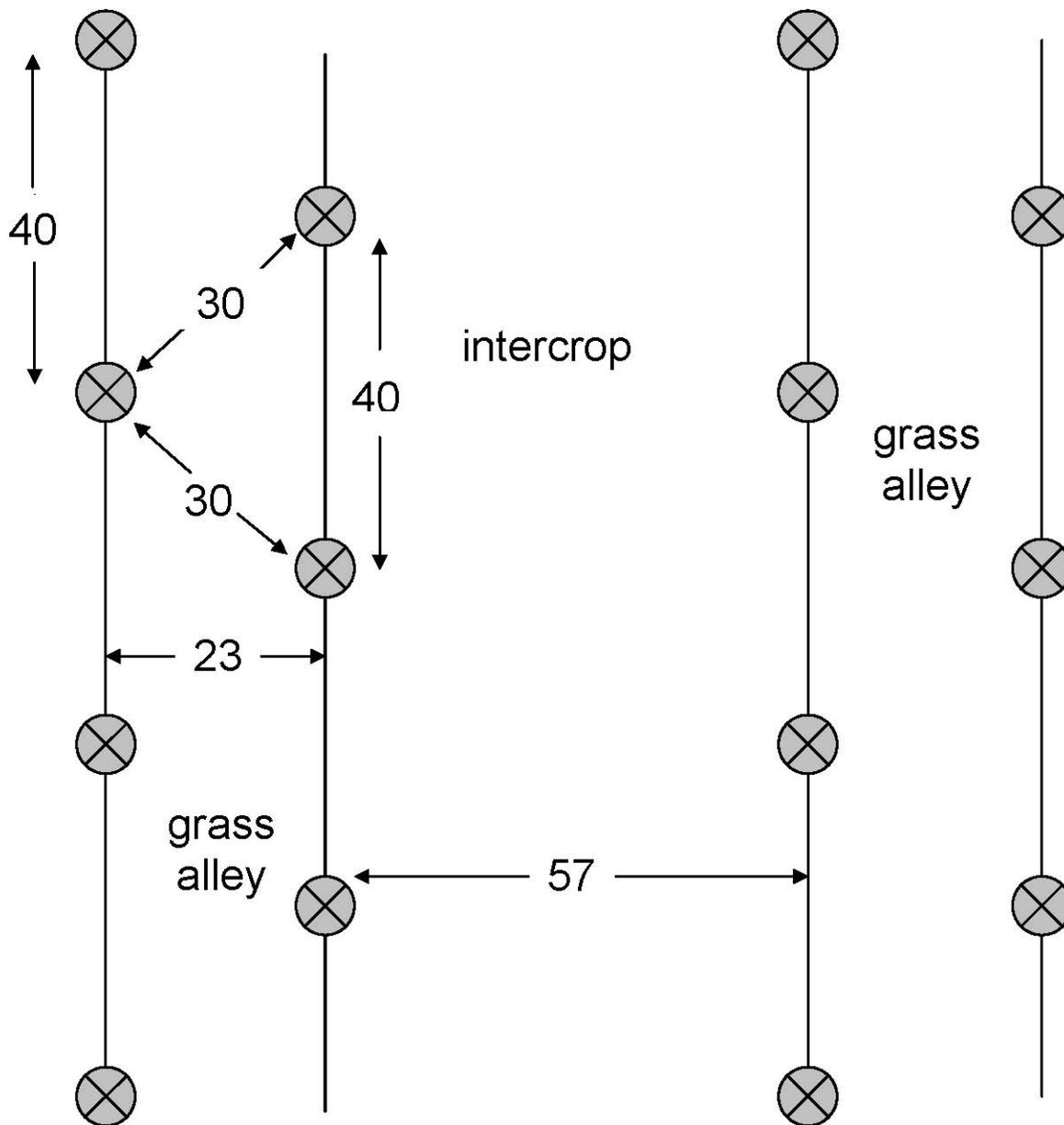


Figure 2. The double row pecan planting systems 2 years after tree establishment. Soybean intercrop.



Figure 3 a&b. Trees grafted in the field of the double row systems.



(3a) Pecan tree 3 years after establishment and the 1st summer after grafting.



(3b) Grafted tree, 2nd summer after grafting

Figure 4 a&b. The double row system in the fourth year after establishment with a spring oat intercrop

