COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

Jujube Training and Pruning Basics

By Shengrui Yao[1]

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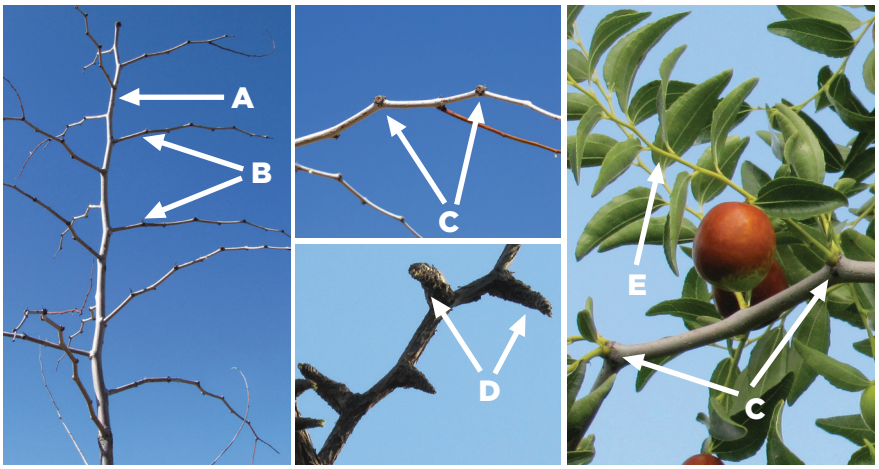

Figure 1. **Jujube shoot structures: primary shoot (A), secondary shoot (B), mother bearing shoot (young fruiting spur; C), old fruiting spur (D), and fruit-bearing shoot (branchlet; E).**

INTRODUCTION

Jujube is a new fruit to most of the American population, and there is very limited information about pruning jujubes. Jujube's shoot structure is different from apples or peaches in that its secondary branches always accompany the primary shoots. There are four kinds of shoots on jujube trees—primary shoot, secondary shoot, fruiting spur, and branchlet—and they all function differently (Figure 1). Primary shoots are responsible for expanding the tree canopy and forming the tree structure, secondary shoots are the base of mother bearing shoots, fruiting spurs are the mother bearing shoots, and the branchlets are the fruit-bearing structures and are deciduous. There are main buds and secondary buds at each node of primary and secondary branches. For more information on jujube, including how to identify primary and secondary shoots, see NMSU Extension Guide H-330, *Jujube: Chinese Date in New Mexico* (https://aces.nmsu.edu/pubs/_h/H330.pdf).

ONE CUT STOPS, TWO CUTS SPROUT

Jujube's special pruning responses are directly related to its shoot and bud structure. An easy way to remember pruning responses is the phrase "one cut stops, two cuts sprout" (Figures 2A–2D).

With apples, peaches, or grapes, when a shoot is pruned short, 1–4 buds directly below the cut may grow out new shoots with a similar structure as the original shoot. But with jujubes, pruning a primary shoot will usually promote no new apical (end) growth, but will instead set fruit on the

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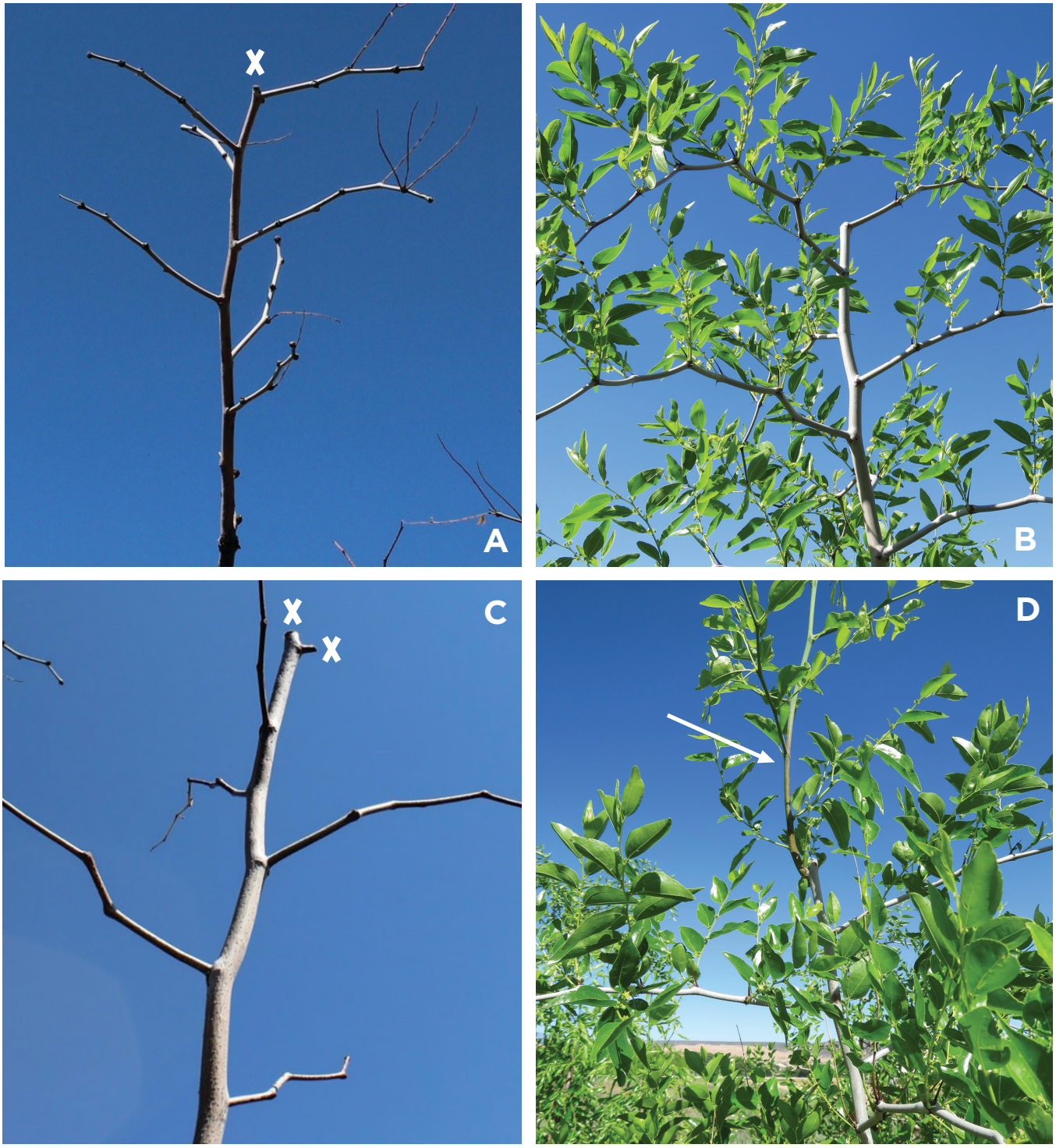


Figures 2A–2D. **"One cut stops, two cuts sprout" in jujube pruning. One cut (A); the bud at the base of the first secondary branch will remain dormant for at least one year. The appearance of the branch in the growing season without a new primary shoot after one cut (B). Two cuts (C); the bud at the base of the first secondary branch will grow out during the growing season. The appearance of the old branch with a new primary shoot (white arrow) in the growing season after two cuts during winter pruning (D).**

remaining secondary branches (Figures 2A and 2B). If the primary shoot is pruned and the first secondary shoot under the first cut is also pruned, the bud on the primary shoot near the base of the secondary shoot will grow out (Figures 2C and 2D). If you want to stop canopy expansion, you can do a single cut to the primary leader shoot. If you want them to keep growing and expand the canopy, you can leave it as is (no pruning) and the terminal bud will continue to grow, or give them two cuts to continue the extension growth (Figures 2C and 2D).

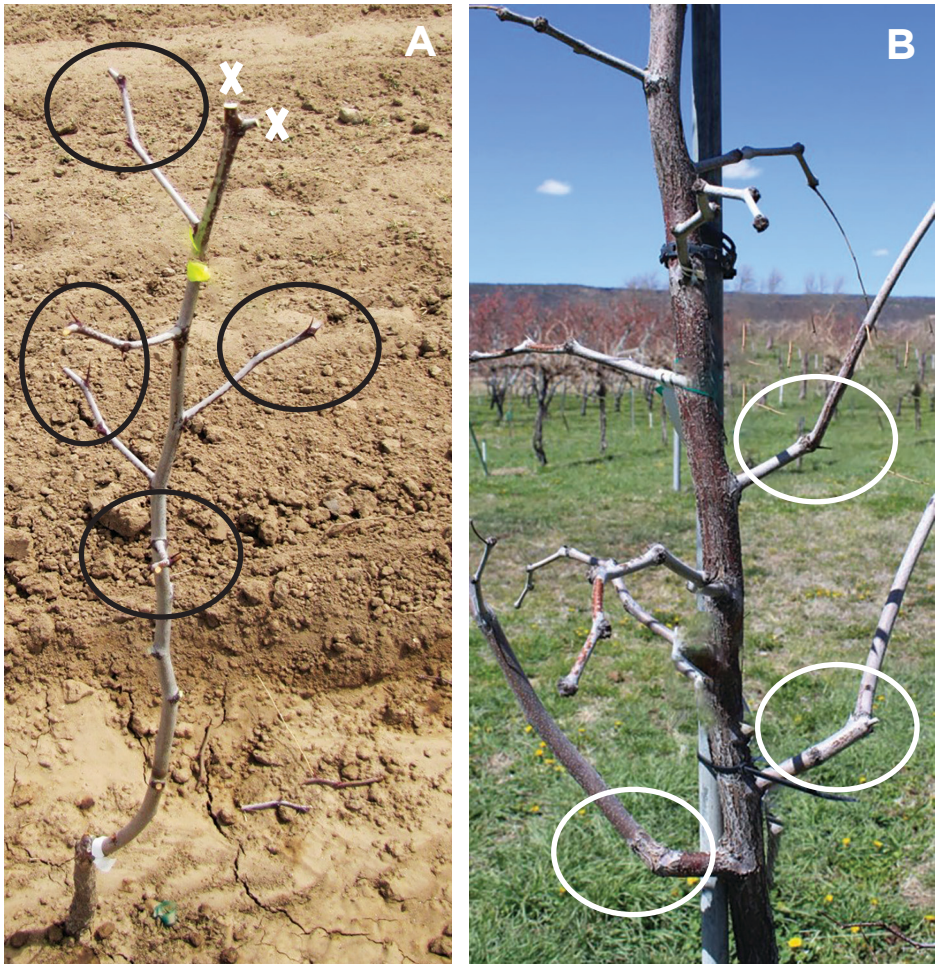


Figure 3. **Shorten secondary branches to 1–2 nodes (black circles) for newly planted trees and two cuts on the trunk top of the central leader (A) to form new branches (white circles) from shortened secondary branches in young trees (B).**

SHORTEN SECONDARY SHOOTS TO STIMULATE BRANCHING

Some cultivars, such as 'Sugarcane' and 'Sandia', have plenty of scaffold branches, while others, such as 'GA866', 'Maya', and 'Sherwood', have limited branches. For cultivars with sparse branches, we can intentionally shorten the secondary shoot to 1–2 nodes to stimulate new primary shoot growth (Figure 3A). Unlike other tree fruit species, shortening the secondary branches does not guarantee new shoot emergence in jujubes. New shoots may come out the same year or the year following pruning. Occasionally, new shoots fail to come out at all. Growers can use this technique on newly planted trees (Figure 3A) or 1- to 3-year-old young trees to stimulate new shoots at desired positions. Branches with wider branching angles originating from secondary branches (Figure 3B) are preferred over branches with narrow angles directly from the trunk.

THINNING CUTS AND SHORTENING LONG BRANCHES

If a jujube tree has too many primary shoots, weak and competing branches should be pruned out from their base. When a tree is short of branches, we can use these to increase the fruiting area, but when a tree is crowded with branches, we can thin them out or shorten them to 2- to 3-year-old secondary branches.

YEAR-BY-YEAR PRUNING

Planting year. If the trees are taller than your expected branching height, prune them to 35–40 inches in height and give the top two cuts to stimulate new growth on the central leader (Figure 3A). If the trees have secondary branches, shorten 4–5 of them to 1–2 nodes to stimulate side branches (Figure 3A). For those secondary branches below 2 feet, remove them completely. Some nurseries trim out all secondary branches for ease of shipping and handling. If the plants have no secondary branches, please also prune the whip down to your desired height, normally 35–40 inches or a little higher if desired. If the whips are strong enough, you may also end up with 2–4 branches. If growers have mechanical harvesting in mind, the branching height should be adjusted accordingly.

Second year. Keep the central leader intact or cut it back with two cuts to balance it with other branches. If you have enough side branches, you can leave them

Figure 4. **Most fruiting spurs on this secondary branch grow out as primary shoots.**

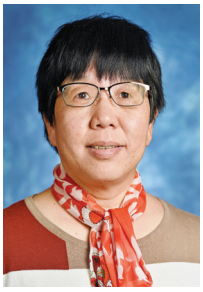
as is for one year or give two cuts to stronger branches to balance them among side branches. Prune out competing branches (if any). If there are not enough side branches from year one, give the central leader just one cut to stop the apical growth, and cut more secondary branches at desired positions/directions to 1–2 nodes to stimulate branching.

Third year and later. Control the tree height with one cut if the trees have already reached 9–10 feet. Prune out dead or damaged branches. Thin out or shorten the competing/crowded branches. You can also shorten the crowded branches to a 2- to 3-year-old secondary branch if space allows. If the tree has reached the desired height, prune the top to a side branch or secondary branch. For the extension branches/leaders of big branches, if there is still room to grow, you can leave them the way they are or use two cuts to stimulate new growth. If there is no room for further expansion, use one cut to stop the extension growth. Those early secondary branches on the central leader are useful for early fruiting, but they need to be removed gradually as trees get older and become crowded in the middle of the canopy.

For some cultivars, the one cut may hold the branch without new growth for more than one year. Then you will suddenly see an explosion of primary shoots when lots of the primary buds of the fruiting spurs on the secondary branches grow out as primary shoots (Figure 4). You can rip off most of them by hand in early summer when you notice them early enough and are sure they are primary shoots, or pinch them out and just keep the base 1–2 nodes if you notice them later. Or you can prune the overcrowded ones out during dormant pruning.

Mature tree pruning. Jujube trees live a long life. When trees are 15–20 years or older, they produce annually with stable structure and very few or no primary shoots. Pruning can be really simple or even unnecessary every year. If needed, you can prune out some old or dead branches, or shorten some old branches to renovate trees. We will have another publication on this topic when our trees at the Alcalde Center are getting older.

In general, jujube tree pruning is simpler than most temperate tree species, but they do need some attention, especially young trees since most people prefer to keep their jujube trees at a manageable size. These are the basics of jujube pruning, and we do not have detailed studies about jujube pruning yet. As you tend your trees, note how your individual trees respond to different conditions and treatments and use these observations to guide your future pruning.



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