## Pullman Ponderosa Pine Seed Orchard Establishment

The new ponderosa pine seed orchard was established May 29-31, 2007. Washington DNR took the lead in establishing the orchard. Jeff DeBell and Rocky Oster spent many hours working out all of the details. Joanne Kaye and Steve Signal completed all of the grafting. Zach Landgraf, Sherry Graham, and Karen Blair assisted with the site preparation and planting. We also hired the UI Student Logging Crew to assist with the planting effort.

Left. Planting of the first tree on 5/29/07. The planter is Zach Landgraf, Washington DNR.

**Right**. Jeff DeBell (right) and Rocky Oster (left). Rocky supervised the project, designed the irrigation system and worked out many of the logistical and design issues.







Scion were grafted onto one-year-old rootstock and placed in cold storage prior to grafting. The grafting was done by Joanne Kaye and Steve Signal, Washington DNR.

Immediately after planting, the grafting band was painted with pruning seal to prevent the graft union from drying out.





Sherry Graham, Washington DNR, fixing a tree tube around the first tree to be planted. The tree tubes will protect the newly grafted trees from winds commonly experienced on the Palouse. Part of the UI logging crew looks on. The UI crew was instrumental in helping establish the seed orchard quickly during a period of unusually warm spring weather.

Weed barrier mats were placed around each tree to reduce competition from invasive weeds. The drip tube connects to risers (right) and is "fed" by the mainline located underground.



Water is supplied to the main line by two large water tanks located on the top of the hill.



The problem with a "gravity-feed" drip irrigation system is that the pressure is low at the top of the hill and high at the bottom. To compensate for this, different emitters and different numbers of emitters were used at different places along the line. Rocky Oster spent countless hours working out all of the details to insure that each tree received the "target" amount of water. At the top, where pressure is low, three "free-flow" drip emitters were used.



As the pressure increases down the hill, first two emitters and then one emitter were used to provide the "target" amount of water to each tree.





Moving down the hill, the pressure increases to the point where pressure compensating emitters can be used. They were used the rest of the way down the line.



Rocky Oster instructs Sarah from the UI crew on how to fix a leak in the drip line. The UI crew will turn the water on each week and check the line for leaks.



Part of the orchard after planting was completed.



One week after planting, some grafts are already beginning to elongate.



## Before (above) and After (below)



Special thanks to Jeff DeBell (not pictured) and the Washington DNR crew (4 on left) for designing and establishing the orchard. Thanks to the UI School Forest Logging Crew for their hard work on this project.

