

Examples of Academic and Research Institution Assistance* Western Juniper Commercialization Project

(*Represents about 50% of research projects and field trials completed - remainder done by private consultants and other government sources.)

<i>Year</i>	<i>Issue or Activity</i>	<i>Research Assistance Source</i>
Pre-1990s	- What is service life of treated and untreated posts? - What are drying schedules for WJ? - What basic essential oils are found in WJ? - Can WJ be used to make dry-formed hardboard and what are performance characteristics?	Oregon St. University (OSU), Forest Research Lab; (Post study was begun in late 1940s and others were completed in early to mid-1950s.)
1980s to Present	- WJ Field Workshops, various locations;	OSU, Extension (Various)
1980s to Present	- Western juniper inventory;	USFS, Pacific NW Research Station
1980s to Present	- Basic WJ biological and mgt. research;	OSU, Rangeland Resources (Eddleman, Miller, et al.)
1993	- WJ Management, Extension Publication	OSU, Rangeland Resources (Beddell et al.)
1993	- Can composites be made from WJ using standard industry resins, and how do they perform? -Included samples;	USFS, Forest Products Lab (English)
1993	- Western Juniper Forum '93	OSU, Forest Research Lab Extension (Niemic)
1993	- How well do standard exterior finishes perform on WJ siding and decking?	USFS, Forest Products Lab (Knaebe et al.)
1993 to Present	- What are basic physical and mechanical properties of WJ? - Included samples & display;	U. of Montana (Burke)
1994	- Can WJ bark be used as cement aggregate? - Included samples;	Oregon Institute of Technology (Cornachione)
1994	- How well do standard interior consumer finishes perform on WJ? - Included samples;	U. of Montana (Burke)
1994	- What is fastener performance in WJ? - Included samples;	U. of Montana (Burke)
1994	- What is BTU of WJ and how well can pellets be made from WJ using standard industry equipment? - Included samples;	U. of Montana (Burke)
1994	- What are in-service shrink/swell characteristics of WJ edge-glued (EG) panels?	U. of Montana (Burke)

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	-Included samples;	
1994	- What are the bending characteristics of WJ? - Included samples;	U. of Montana (Burke)
1995	- What are proper kiln dry schedules for WJ? - Included samples;	OSU, Forest Research Lab (Milota)
1995	- How well does WJ respond to pre-steaming before drying and high-temp./steaming during drying?	OSU, Forest Research Lab (Milota)
1995	- What is causing splits and cracks in EG panels in-service? - Included samples;	OSU, Forest Research Lab (Milota)
1995	- What are moisture meter correction factors for WJ?	OSU, Forest Research Lab (Milota)
1995 - Present	- WJ wood technology and processing info. transfer and assistance;	OSU, Wood Products Extension (Leavengood)
1995 - Present	- Create and maintain data base for newsletter mailing list and manufacturer contacts;	OSU, Wood Product Extension (Leavengood)
1995	- What are potential WJ residuals markets?	OSU, Wood Products Extension (Leavengood)
1995	- Is there a niche market for WJ rustic frames and how well does standard joinery work? - Included samples;	U. of Montana (Burke)
1995	- Report summarizing industry review trip to Missouri eastern redcedar industry;	OSU, Wood Products Extension (Leavengood)
1995	- Assistance with WJ Steering Committee notes;	OSU, Wood Products Extension (Leavengood)
1995	- WJ Management Demonstration Area;	OSU, Forestry and Wood Products Extension (Fitzgerald and Leavengood)
1996 - Present	- Management, science, and manufacturing articles for WJ newsletter;	OSU, Rangeland Sciences, Wood Products Extension, and USFS
1996 - Present	- WJ Web Site Maintenance (OSU server for tech. transfer [http://juniper.orst.edu]and prvt. server for commercial aspects [westernjuniper.org])	OSU, Wood Products Extension (Leavengood)
1996	- What are current recovery figures for WJ solid wood processing operations?	OSU, Wood Products Extension (Leavengood)

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1996 - Present	- Essential oils chemistry and market research; - Included samples and raw material for other testing;	OSU, Forest Research Lab (Karchesy)
1996	- How is WJ recovery affected by implementing a saw-dry-rip program? - Included samples;	OSU, Forest Research Lab (Milota)
1997	- Summary of WJ drying results;	OSU, Wood Products Extension and USFS (Leavengood and Swan)
1997	- What are effects on recovery of various log storage methods and time periods?	OSU, Wood Products Extension and USFS (Leavengood and Swan)
1997	- What are baseline economics and issues of WJ harvest?	USFS, PNW Research and USFS (MacNeel and Swan)
1997	- WJ door performance in controlled environment;	OSU, Forest Research Lab (Reeb)
1997	- How well does WJ debark using standard industry equipment?	OSU, Wood Products Extension and USFS (Leavengood and Swan)
1997	- Organize Western Juniper Forum '97, and compile and edit proceedings;	OSU, Wood Products Extension and USFS (Leavengood and Swan)
1997 to Present	- Various bioactivity and anti-cancer screening;	National Cancer Institute, OSU Forest Research Lab and School of Pharmacy (Karchesy, Constantine et al.);
1997 to Present	- WJ Newsletter editing and mailing list management;	OSU, Wood Products Extension (Leavengood)
1998	-International periodical search for WJ oils uses and references, and recommendations for economically-promising areas to pursue;	OSU, Forest Research Lab (Karchesy)
1998	- How well does WJ dry in a solar kiln?	OSU, Wood Products Extension (Leavengood)
1998	- What WJ basic fiber and chemical properties?	USFS, Forest Products Lab (Myers et al.)
1998	- What are baseline economics and recovery figures for a WJ commercial firewood operation?	OSU, Wood Products Extension (Leavengood)
1998	- Does WJ have antimicrobial activity?	OSU, College of Veterinary Medicine (Craig et al.)
1998	- Does WJ reduce destructive chewing damage by horses and other animals?	OSU, College of Veterinary Medicine (Pearson et al.)

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1998	- How well do WJ shavings absorb moisture compared to other common bedding materials?	OSU, College of Veterinary Medicine (Pearson et al.)
1998	- What are major chemical compounds in WJ berries?	OSU, College of Pharmacy (Constantine)
1998	- Crop disease assays, and industry development contacts;	OSU, Forest Research Lab and College of Pharmacy (Karchesy and Constantine)
1998	- What are effects of various forms and applications of WJ on honey bee tracheal and varroa mite populations?	OSU, Dept. of Entomology (Royce and Burgett)
1998	- What are effects of solid wood WJ hive construction on honey bee tracheal and varroa mite populations?	OSU, Dept. of Entomology (Royce and Burgett)
1998 to Present	- Comprehensive WJ bibliography;	OSU, Wood Products Extension (Leavengood)
1999	- How well do WJ shavings mask horse urine odors?	OSU, Dept. of Food Sciences (Bruslind)
1999	- How well do WJ shavings decay compared to other shavings commonly used for animal bedding?	OSU, Forest Research Lab (Morrell)
1999	- How active is juniper heartwood oil act against mosquitos and rat fleas?	Center for Disease Control, OSU Forest Research Lab and School of Pharmacy (Karchesy, Constantine et al.)
1999	- What is the concentration of polyphenol antioxidants in WJ bark? - Market contacts included;	OSU, Forest Research Lab and School of Pharmacy (Karchesy and Constantine)
1999	- Identification of unknown WJ heartwood oil compound, and its commercial implications;	OSU, Forest Research Lab (Karchesy)
1999	- Can conversion of biological inactive WJ heartwood oil fractions to active fractions be improved?	OSU, Forest Research Lab (Karchesy)
1999	- What are needs of potential WJ association and interests of potential members?	OSU & Washington St. Univ. Extension (Leavengood and Freed)

*Reports for some activities cited are available at <http://juniper.orst.edu/>. Please check the *Western Juniper Bibliography* at this web site for on-line availability or contact Scott Leavengood, OSU Wood Products Extension Agent, Klamath Falls, OR. (email Scott.Leavengood@orst.edu or phone 541/883-7131).