

User's Manual for the Wood Quality DLL of ORGANON 9.1

The ORGWQ.DLL and ORGWQ.LIB Microsoft compatible import files were created using the Lahey/Fujitsu FORTRAN 95 compiler. One subroutine has been exposed for usage by other programs: WOODQUAL.

SUBROUTINE

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WOODQUAL(IJCALC, IEVEN, IFINAL, ACTION, BHAGE, STAGE, NINGRO, NPTS,  
         NTREES, NWQT, VERSION, SPECIES, SITE_1, SITE_2, PDEN, DBH, HT,  
         CR, SCRX, EXPAN, MGEXP, DGRO, HGRO, CRCHNG, SCRCHNG, BRCNT,  
         BRDIA, BRHT, JCORE, IDIB)
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DIMENSIONS SPECIES(2000), DBH(2000), HT(2000), CR(2000), SCRX(2000),  
          EXPAN(2000), MGEXP(2000), DGRO(2000), HGRO(2000),  
          CRCHNG(2000), SCRCHNG(2000), BRCNT(2000, 3),  
          BRDIA(2000, 40), BRHT(2000, 40), JCORE(2000, 40),  
          IDIB(2000, 40)
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The following variables will include a classification describing whether each variable is strictly an "INPUT" variable (i.e., it is entered into the DLL and is not modified by the DLL), strictly an "OUTPUT" variable (i.e., it is created with in the DLL and then outputted by the DLL), or a combination "INPUT/OUTPUT" variable (i.e., it is entered into the DLL, modified by the DLL, and the modified variable is outputted by the DLL).

Description of Variables

IJCALC	INTEGER*4	Definition of juvenile wood core: 0 = Age definition; 1 = Crown definition. (INPUT variable)
IEVEN	INTEGER*4	1 = Stand is even-aged; 0 = Stand is uneven-aged. (INPUT variable)
IFINAL	INTEGER*4	1 = Final harvest (clearcut) has been done; 0 = No final harvest has been done. (INPUT variable)

ACTION	INTEGER*4	1 = Initial fill in wood quality values of trees before growing or treating the stand; 2 = Fill in wood quality values of trees after adding ingrowth; 3 = Add whorls after each 5-year growth cycle; 4 = Finalize wood quality values on thinned trees; 5 = Finalize wood quality values of all remaining trees at end of the run (or after clearcut). (INPUT variable)
BHAGE	INTEGER*4	Breast height stand age at the start of the current growth cycle(s). ORGANON will update this value during projections. BHAGE should be 0 for an uneven-aged stand. (INPUT/OUTPUT variable)
STAGE	INTEGER*4	Total stand age at the start of the current growth cycle(s). ORGANON will update this value during projections. STAGE should be 0 for an uneven-aged stand. (INPUT/OUTPUT variable)
NINGRO	INTEGER*4	Number of ingrowth trees added to the end of the file. (INPUT variable)
NPTS	INTEGER*4	Total number of sample plots/points used to collect the tree list data. Include all treeless plots/points in the count. (INPUT variable)
NTREES	INTEGER*4	Total number of sample trees measured in the stand (NTREES cannot exceed 2000). NTREES could increase over the run if tripling is used. (INPUT/OUTPUT variable)
NWQT	INTEGER*4	An internal variable used by ORGANON which must not change over multiple calls of the ORGANON DLL. Initialize to zero before the first call to the WOODQUAL DLL. WOODQUAL will then calculate this value. The resulting value should not be modified by the DLL user in subsequent continued projections of the tree list. (OUTPUT variable)
VERSION	INTEGER*4	Version of ORGANON to be used: 1 =

Southwest Oregon, 2 = Northwest Oregon, 3 = Stand Management Cooperative, 4 = Red Alder Plantation. (INPUT variable)

SPECIES (I) INTEGER*4 Species code for the Ith sample tree, $1 \leq I \leq$ NTREES (maximum of 2000). (INPUT variable)

SITE_1 REAL*4 Douglas-fir site index: Hann and Scriviani (1987) for the SWO version, and Bruce (1981) for the NWO and SMC. Red alder site index: Weiskittel et al. (2009) for the RAP version. For the SWO, NWO, and SMC versions, ORGANON will calculate this value from SITE_2 if it is set to zero. For the RAP version, SITE_1 must be entered. (INPUT variable)

SITE_2 REAL*4 Other site index: Hann and Scriviani (1987) ponderosa pine site index for the SWO version and Flewelling's site index for western hemlock in the NWO and SMC versions. For the RAP version, Bruce (1981) Douglas-fir site index. For the SWO, NWO, and SMC versions, ORGANON will calculate this value from SITE_1 if it is set to zero. For the RAP version, it will be reset to 115 if not entered by the user. (INPUT variable)

PDEN REAL*4 For RAP-ORGANON, the starting number of red alder trees per acre (i.e., planting density) for the plantation. Must be specified for RAP-ORGANON only, otherwise it is set to zero. (INPUT variable)

DBH (I) REAL*4 DBH for the Ith sample tree, $1 \leq I \leq$ NTREES (maximum of 2000). (INPUT variable)

HT (I) REAL*4 Total height for the Ith sample tree, $1 \leq I \leq$ NTREES (maximum of 2000). (INPUT variable)

CR (I)	REAL*4	Crown ratio for the I th sample tree, $1 \leq I \leq \text{NTREES}$ (maximum of 2000) (INPUT variable).
SCR (I)	REAL*4	Shadow crown ratio for the I th sample tree, $1 \leq I \leq \text{NTREES}$ (maximum of 2000). Shadow crown ratio is used for pruned trees and it is the crown ratio of the tree if it had not been pruned. ORGANON will update shadow crown ratios. Therefore, it is strongly recommended that stands which had been pruned before the measurement of the input tree listing not be projected in ORGANON. For unpruned stands, set SCR to zero. For the first pruning conducted in ORGANON, set SCR for each pruned tree to the CR before pruning. For a subsequent pruning in ORGANON, set SCR for each newly pruned tree to either the CR before the subsequent pruning or to the previous SCR value, whichever is larger. (INPUT variable)
EXPAN (I)	REAL*4	The plot/point level expansion factor for the I th sample tree (i.e., the expansion factors should NOT be divided by the total number of plots/points measured in the stand), $1 \leq I \leq \text{NTREES}$ (maximum of 2000). (INPUT variable)
MGEXP (I)	REAL*4	The plot/point level expansion factor for the I th sample tree that was removed by cutting just prior to the start of the current growth period (i.e., do not include trees cut at the start of previous growth periods), $1 \leq I \leq \text{NTREES}$ (maximum of 2000). Again, the expansion factors should NOT be divided by the total number of plots/points measured in the stand. (INPUT variable)

DGRO (I)	REAL*4	The 5-year diameter growth rate for the I th sample tree that occurred during the last 5-year growth period, $1 \leq I \leq \text{NTREES}$ (maximum of 2000). (INPUT variable)
HGRO (I)	REAL*4	The 5-year height growth rate for the I th sample tree that occurred during the last 5-year growth period, $1 \leq I \leq \text{NTREES}$ (maximum of 2000). (INPUT variable)
CRCHNG (I)	REAL*4	The 5-year change in crown ratio for the I th sample tree that occurred during the last 5-year growth period, $1 \leq I \leq \text{NTREES}$ (maximum of 2000). (INPUT variable)
SCRCHNG (I)	REAL*4	The 5-year change in the shadow crown ratio for the I th sample tree that occurred during the last 5-year growth period, $1 \leq I \leq \text{NTREES}$ (maximum of 2000). (INPUT variable)
BRCNT (I, J)	INTEGER*4	J = 1: Total number of 5-year whorls (maximum of 40) found on the I th tree (maximum of 2000 trees); J = 2 or 3: Intermediate counts for the I th tree (maximum of 2000 trees). (INPUT/OUTPUT variable)
BRDIA (I, J)	INTEGER*4	Maximum branch diameter of the J th 5-year whorl (maximum of 40) found on the I th tree (maximum of 2000 trees). (INPUT/OUTPUT variable)
BRHT (I, J)	INTEGER*4	Height about ground to the J th 5-year whorl (maximum of 40) found on the I th tree (maximum of 2000 trees). (INPUT/OUTPUT variable)
JCORE (I, J)	INTEGER*4	Diameter of the juvenile wood core of the main stem at the J th 5-year whorl (maximum of 40) found on the I th tree (maximum of 2000 trees). (INPUT/OUTPUT variable)
IDIB (I, J)	INTEGER*4	Diameter inside bark of the main stem at the J th 5-year whorl (maximum of 40) found on the I th tree (maximum of 2000 trees). (INPUT/OUTPUT variable)