

## WATSUIT

A computer program which predicts the salinity, sodicity, and toxic-solute concentration of the soil-water within a simulated crop rootzone resulting from the use a particular irrigation water of given composition and at a specified leaching fraction. can be used to evaluate the effect of a given salinity level (or solute concentration) c yield and of a given sodicity level on soil permeability.

## SYSTEM REQUIREMENTS

Watsuit is written in standard FORTRAN 77 and requires ANSI.SYS installed in your CONFIG.SYS file, i.e. DEVICE=C:\DOS\ANSI.SYS. The reason ansi.sys is required because ansi screen commands are used to clear your computer screen. If for some reason you do not have ANSI.SYS the program will still run but will not your screen will not be cleared. MS-DOS 2.0 or later operating system and standard IBM 360 or 1.2 kbytes diskette drives are required.

## EXECUTION OF PROGRAM

### A. WATSUIT.EXE

1. Executable file for IBM PC or compatibles without the numerical co-processor.
2. To run, at DOS prompt type: Wasuit (return)

### B. Wats87.EXE

1. Executable file for IBM PC or compatibles with the numerical co-processor (8087, 80287, or 80387).

2. To run, at DOS prompt type: Wats87 (return)

### C. Running WATSUIT

1. Select to send output to the screen or to a Disk file.

a. ENTER "S" for screen

b. ENTER "D" for disk

b.1 If you enter "D" you must next enter a filename to store the output. This filename must be no longer than 8 characters and 3 characters for the extension.

b.2 Example A:filename.ext

2. ENTER "Y" for CaCO<sub>3</sub> saturation

"N" for no CaCO<sub>3</sub> saturation

3. ENTER CASE ID

a. CASE ID limit to 8 alphanumeric characters

4. ENTER solute concentrations of irrigation water

a. Enter CA, MG, NA, K, CL, ALK, and SO<sub>4</sub>.

b. Concentration can be separated by commas or (returns).

NOTE: If there is an Cation/Anion imbalance, the program will calculate the difference. If the difference (sum of cations minus sum of anions) is positive, it will add the difference to the Anion that has not been initialized in the order of (Cl, SO<sub>4</sub>,

ALK), if all are initialized, difference will be added to Cl. If difference is negative (i.e., sum of anions > sum of cations) program will subtract the absolute difference in the order of (CL, SO4, ALK). If no one Anion can handle the subtraction, program stops.

5. ENTER "Y" for yes or "N" to indicate you wish to enter amendments.

a. ENTER "Y" or "N" for amendments desired

H2SO4 ?

1meq CaSO4 ?

2meq CaSO4 ?

5meq CaSO4 ?

10meq CaSO4 ?

20meq CaSO4 ?

User Define CaSO4 ?

b. If Y is enter for User Define CaSO4? User must Enter the desired

6. ENTER "Y" for yes or "N" for no to indicate the desired leaching fractions.

a. ENTER "Y" or "N" for leaching fractions.

.05?

.10?

.20?

.30?

.40?

User Define Leaching Fraction ?

- b. If Y is entered for User Define Leaching Fraction? User must enter the desired leaching fraction in decimal form.

#### D. Printing Results:

##### 1. Disk file

###### a. Technique #1

- a1. Hit: CTRL-P (turn printer on)
- a2. Type: filename (return)
- a3. Hit: CTRL-P (turn printer on)

###### b. Technique #2

- b1. At DOS prompt type: PRINT filename (return)

NOTE: PRINT is a basic DOS program which should be present on your DOS disk or DOS sub-directory. If your DOS sub-directory is not on your path in your autoexec.bat file, you will need to type in the full pathname above.

i.e. type: c:\dos\print filename (return)

##### 2. Screen

- a. Hit: CTRL-P at beginning of session - all results will print on screen and printer.
- b. Hit: CTRL-P turns printer off.