**Test of DSSAT-ORYZA2000 linkage** May 25, 2011

Potential production – wet season file

ORYZA2000 Filename: IR72wsn3.t92

DSSAT File name: IRMA9201.RIX

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\* EXPERIMENTAL DATA FILE \*

\* \*

\* File name : IR72WSN3.T92 \* \*

\* Crop : Oryza sativa cv. IR72 \*

\* Year/Season : 1992, wet season, with and without late N \*

\* Experimental site: IRRI farm, Field K3, 14.22N, 121.25E, 23m \*

\* People : Kropff/Cassman/Libbon/Torres \*

\* Address : IRRI, MCPO 3127, 1271 Makati City, Philippines \*

\* Additional info : Potential production experiment \*

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\* This run: \*

\* Fertilizer : Daynr 194 217 239 263 \*

\* 80N +LN 40 40 - 30 \*

\* This near by the potential condition

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\* 1. Selection of modes of running \*

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\*-- RICETYPE is to select lowland rice or aerobic/upland rice

RICETYPE = 'LOWLAND' ! Lowland rice

\*RICETYPE = 'AEROBIC' ! Upland or aerobic rice

\*-- RUNMODE: mode of running ORYZA

RUNMODE = 'EXPERIMENT' ! ORYZA simulates particular experiment

\*RUNMODE ='EXPLORATION' ! ORYZA used for exploraton

\*-- PRODENV = Production situation setting

PRODENV = 'POTENTIAL' ! Potential production

\*PRODENV = 'WATER BALANCE' ! Production may be water-limited

\*-- WATBAL is choice of water balance

\* needs only be given when PRODENV = 'WATER BALANCE'

WATBAL = 'PADDY' ! PADDY water balance (for lowland soils)

\*WATBAL = 'LOWBAL' ! LOWBAL water balance (for lowland soils)

\*WATBAL = 'SAHEL' ! SAHEL water balance (for freely draining upland soils)

\*WATBAL = 'SAWAH' ! SAWAH water balance (for lowland or upland soils)

\*-- NITROENV = Nitrogen production situation setting

\*NITROENV = 'POTENTIAL' ! Potential production

NITROENV = 'NITROGEN BALANCE' ! Production may be nitrogen-limited

\* WARNING: NITROGEN AND WATER LIMITATIONS AT SAME TIME IS AS

\* YET UN UNVALIDATED OPTION IN ORYZA2000!!!!

\*-- ETMOD is method for evapotranspiration calculation:

ETMOD = 'PENMAN' ! Penman-based (Van Kraalingen & Stol,1996)

\*ETMOD = 'PRIESTLY TAYLOR' ! Priestly-Taylor (")

\*ETMOD = 'MAKKINK' ! Makkink (Van Kraalingen & Stol, 1996)

\*DSSAT: EVAPO = ‘P’

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\* 2. Timer data for simulation \*

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IYEAR = 1992 ! Start year of simulation (year)

STTIME = 183. ! Start time (day number)

FINTIM = 1000. ! Finish time (days after start)

DELT = 1. ! Time step (day)

\*DSSAT: YRSIM = 92183

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\* 3. Weather station and climatic data for simulation \*

\*--------------------------------------------------------------------\*

WTRDIR = ' ' ! Directory of weather data

CNTR = 'PHIL' ! Country code

ISTN = 1 ! Station code

ANGA = 0.29 ! Angstrom A parameter

ANGB = 0.45 ! Angstrom B parameter

TMCTB = 0., 0., ! Table for temperature increase

366., 0. ! Climatic Change studies

FAOF = 1. ! MultipL. factor for pot. evapotranspiration (FAO)

! Value Murty & Tuong

TMPSB = 0. ! Temperature increase in seed-bed due to cover:

! Zero when no cover over seed-bed; 9.5 with seed-bed

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\* 4. Establishment data

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\*-- ESTAB is method of establishment: 'TRANSPLANT' or 'DIRECT-SEED'

ESTAB='TRANSPLANT'

\*ESTAB='DIRECT-SEED'

\*DSSAT: PLME = ‘T’

\* Transplanting date Day 195, 1992; sowing date Day 183.

EMD = 183 ! Day of emergence (either direct, or in seed-bed)

EMYR = 1992 ! Year of emergence

SBDUR = 12 ! Seed-bed duration (days)

\*DSSAT: YRPLT = 92195

\* PAGE = 12

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\* 5. Management parameters \*

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NPLH = 5. ! Number of plants per hill

NH = 25. ! Number of hills

NPLSB = 1000. ! Number of plants in seed-bed (???)

NPLDS = 200. ! Number of plants/m2 direct-seeded

\*DSSAT: PPOP = 1000. plants / m2 in seed bed

\* PPOE = 5 \* 25 = 125 plants / m2 transplanted

\*-- Initial data at emergence, for either direct-seeding or seed-bed

\* Standard data used.

LAPE = 0.0001 ! Initial leaf area per plant

DVSI = 0.0 ! Initial development stage

WLVGI = 0.0 ! Initial leaf weight

WSTI = 0.0 ! Initial stem weight

WRTI = 0.0 ! Initial stem weight

WSOI = 0.0 ! Initial weight storage organs

ZRTI = 0.0001 ! Initial root depth (m)

\*-- Re-initialization at transplanting (standard data used)

ZRTTR = 0.05 ! Root depth at transplanting (m)

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\* 6. Irrigation parameters

\* Need only to be filled-in when PRODENV = 'WATER BALANCE'

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\*No data needed for potential water condition

\* NEW, SEPT 2006:

DVSIMAX = 2.0 ! Development stage after which no more irrigation is applied

\* NEW SETTING, BY TAOLI, 21 MAY 2010

\* The determination for switch critical

ICOMBA = 4 !1: Use Julian day; 2: Use DVS and 3: Use mixture of DVS and Julian day,

\* but the Julian day is not allowed to be smaller than 2

\* Combining irrigation management methods table IRMTAB, it must have at least two lines,

\* X (Julian day or DVS or DVS+Julian, present the switching day), Y (methods in real number)

IRMTAB = 0.,2.0,

28.0,2.0,

29.0,0.0,

366.0,0.0

\*\* Select from the following options:

\*SWITIR = 0 ! No irrigation; rainfed

\*SWITIR = 1 ! Irrigation supplied as input data

\*SWITIR = 2 ! Irrigation at minimum standing soil water depth

\*SWITIR = 3 ! Irrigation at minimum soil water potential

\*SWITIR = 4 ! Irrigation at minimum soil water content

\*SWITIR = 5 ! Irrigation at x days after disapp. standing water

\*SWITIR = 6 ! Irrigation at minimum soil water potential in defined periods only

\*\* If SWITIR = 1, supply irrigation table, amount of irrigation

\*\* (y in mm) for a given calendar \* day (x), used if

\*RIRRIT =

\*\* If SWITIR = 2:

\*\*\*1) supply amount of irrigation IRRI2 (mm)

\*\*\*2) supply minimum standing water depth WL0MIN (mm) below which irrigation water is applied

IRRI2 = 75. ! Irrigation gift (mm) !IT MUST BE REAL DATA

WL0MIN = 10. ! Minimum standing water depth (mm) !IT MUST BE REAL DATA

\*\* IF SWITIR =3:

\*\*\*1) supply amount of irrigation IRRI3 (mm)

\*\*\*2) supply minimum soil water potential KPAMIN (KPa)

\*\*\*3) Supply soil layer for which KPAMIN aplied, SLMIN3

IRRI3 = 50. !IT MUST BE REAL DATA

KPAMIN = 70. !IT MUST BE REAL DATA

SLMIN3 = 3 !IT MUST BE INTEGER DATA

\*\* IF SWITIR = 4:

\*\*\*1) supply amount of irrigation IRRI4 (mm)

\*\*\*2) supply minimum soil water conten WCAMIN (-)

\*\*\*3) Supply soil layer for which KPAMIN aplied, SLMIN4

IRRI4 = 50. !IT MUST BE REAL DATA

WCMIN = 0.30 !IT MUST BE REAL DATA

SLMIN4 = 3 !IT MUST BE INTEGER DATA

\*\* IF SWITIR = 5:

\*\*\*1) supply amount of irrigation IRRI5 (mm)

\*\*\*2) supply number of days after disappearence of standing water (WL0DAY) at which irrigation water is applied

IRRI5 = 50. !IT MUST BE REAL DATA

WL0DAY = 5 ! number of days after disappearence of (-) INTEGER!!

\*\* IF SWITIR = 6:

\*\*\*1) supply amount of irrigation IRRI6 (mm)

\*\*\*2) Supply soil layer for which KPAMIN aplied, SLMIN6

\*\*\*3) period table as "start DVS' 'finish DVS' 'KPAMIN during period'

\* Irrigation will be applied in the periods between 'start DVs' to 'end DVS'

\* and only when the soil water tension in layer SLMIN is above KPAMIN in that period

\* Note: at maximum 5 stages can de defined (no more than 15 data in table)!

IRRI6 = 50. !IT MUST BE REAL DATA

SLMIN6 = 3 !IT MUST BE INTEGER DATA

ISTAGET = 0.00, 0.20, 5.,

0.65, 0.80, 50.,

1.00, 1.20, 5.,

1.50, 1.60, 50.,

1.70, 1.80, 5.

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\* 7. Nitrogen parameters \*

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\*TWO SOIL C AND N DYNAMICS

NUTRIENT = 'GENERAL SOM' !USE GENERAL SOIL ORGANIC C AND N MODULE TO HANDLE THE NUTRIENT CHANGES

\*NUTRIENT = 'APSIM SOILN' !USE APSIM SOIL C AND N MODULE TO HANDLE THE NUTRIENT CHANGES, IT CONSISTED

!BY SOILN, POND AND SURFACEOM MODULES

\* Table of recovery fraction of Nitrogen in the soil (-) second column

\* versus development stage (DVS) (first column) STANDARD VALUE

RECNIT =

0.0, 0.30,

0.2, 0.35,

0.4, 0.50,

0.8, 0.75,

1.0, 0.75,

2.5, 0.75

SOILSP = 0.5 ! Soil N mineralization rate (kg N/ha/d)

\* Table of fertilizer rate (kg N/ha) (second column) versus days after sowing

\* in the seed-bed (!) (first column)

FERTIL =

0., 0.,

9., 0.,

10., 40.,

11., 0.,

22., 0.,

23., 40.,

24., 0.,

54., 0.,

55., 0.,

56., 0.,

78., 0.,

79., 30.,

80., 0.,

366., 0.

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\* 8. Measured data \*

\* And option to force measured LAI during simulation \*

\* (instead of using simulated values) \*

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\* Observed phenology: only required if program DRATES is run!!

IDOYTR = 195 ! Day of transplanting (give 0 if direct-seeded)

IYRTR = 1992 ! Year of transplanting (give 0 if direct-seeded)

IDOYPI = 239 ! Day of panicle initiation (give -99 if not observed)

IYRPI = 1992 ! Year of panicle initiation (give -99 if not observed)

IDOYFL = 262 ! Day of flowering

IYRFL = 1992 ! Year of flowering

IDOYM = 289 ! Day of maturity

IYRM = 1992 ! Year of maturity

\*DSSAT: FILEA IDAT = 92239

\* FILEA ADAT = 92262

\* FILEA MDAT = 92289

\*Leaf Area Index (m2 leaf / m2 ground):

LAI\_OBS =

1992., 183., 0.,

1992., 195., 0.016,

1992., 217., 0.651,

1992., 239., 3.934,

1992., 248., 3.039,

1992., 262., 4.201,

1992., 276., 3.072,

1992., 289., 1.815

\*DSSAT: FILET LAID

\*-- Parameter to set forcing of observed LAI during simulation

LAI\_FRC = 0 ! No forcing

\*LAI\_FRC = 2 ! Forcing

\*Green leaf dry wt (kg/ha)

WLVG\_OBS =

1992., 183., 0.,

1992., 195., 6.,

1992., 217., 245.,

1992., 239., 1714.,

1992., 248., 2096.,

1992., 262., 2192.,

1992., 276., 1646.,

1992., 289., 1057.

\*DSSAT: FILET LWAD

\*Dead leaf dry wt (kg/ha)

WLVD\_OBS =

1992., 183., 0.,

1992., 195., 0.,

1992., 217., 0.,

1992., 239., 130.,

1992., 248., 267.,

1992., 262., 1119.,

1992., 276., 959.,

1992., 289., 1729.

\*DSSAT: FILET LDAD

\*Stem dry wt (kg/ha)

WST\_OBS =

1992., 183., 0.,

1992., 195., 5.,

1992., 217., 180.,

1992., 239., 1788.,

1992., 248., 2170.,

1992., 262., 2848.,

1992., 276., 3182.,

1992., 289., 3318.

\*DSSAT: FILET SWAD

\*Panicle dry wt (kg/ha)

WSO\_OBS =

1992., 183., 0.,

1992., 195., 0.,

1992., 217., 0.,

1992., 239., 0.,

1992., 248., 0.,

1992., 262., 1084.,

1992., 276., 3858.,

1992., 289., 5142.

\*DSSAT: FILET PWAD

\*Total dry wt (kg/ha)

WAGT\_OBS =

1992., 183., 0.,

1992., 195., 11.,

1992., 217., 425.,

1992., 239., 3632.,

1992., 248., 4533.,

1992., 262., 7243.,

1992., 276., 9645.,

1992., 289.,11246.

\*DSSAT: FILET CWAD

\*Leaf N (g N/g leaf):

FNLV\_OBS =

1992., 183., 0.029,

1992., 195., 0.029,

1992., 217., 0.050,

1992., 240., 0.028,

1992., 250., 0.023,

1992., 264., 0.020,

1992., 278., 0.019,

1992., 288., 0.015

\*DSSAT: FILET LN%D/100.

\*Leaf N (g N/m2 leaf):

NFLV\_OBS =

1992., 183., 1.09,

1992., 195., 1.09,

1992., 217., 1.88,

1992., 239., 1.23,

1992., 248., 1.61,

1992., 262., 1.05,

1992., 276., 1.02,

1992., 289., 0.86

\*DSSAT: FILET LNAD/10.

\*-- Parameter to set forcing of observed NFLV values during simulation

NFLV\_FRC = 0 ! No forcing

\*NFLV\_FRC = 2 ! Forcing

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\*Additional input for night temperature control experiment, if you have temperature control

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ISTEMC = 0 !WHETHER USE TEMPERATURE CONTROL 0 = NO,

\* !1= NIGHT CONTROL, 2=DAY CONTROL

\*SHOUR = 19. !STARTING TIME FOR TEMPERATURE CONTROL

\*EHOUR = 5. !ENDING TIME FOR TEMPERATUREL CONTROL

\*SDAY = 77.

\*EDAY = 105.

\*TTEMP = 22. !TARGET TEMPERATURE, -999 MEANS NET CHANGE IS USED

\*TCHANG = -999. !NET CHANGE OF TEMPERATURE, -999 MEANS TARGET TEMPERATURE IS USED

\*CONTRM = 1 !1 = CONTROL LOWEST TEMPERATURE, 2 = CONSTANT TEMPERATURE