**ALMANAC Output Abbreviation Key**

Weather Data

TMX Maximum daily air temperature (C)

TMN Minimum daily air temperature (C)

STMX Monthly average standard deviation of daily maximum air temperature (C)

STMN Monthly average standard deviation of daily minimum air temperature (C)

RAIN Precipitation (mm)

SDRF Monthly standard deviation of daily precipitation (mm)

SKCF Monthly skew coefficient for daily precipitation

PW/D Monthly probability of wet day after dry day

PW/W Monthly probability of wet day after wet day

DAYP Number of days with precipitation

P5MX Monthly maximum 0.5 h rainfall for period of record (mm)

RAD Solar radiation (MJ m-2)

HRLT Day length (h)

RHUM Relative humidity

ALPH 0.5-h precipitation/total storm precipitation

WVL Wind velocity (m s-1)

WENG Wind energy (kWh m-2)

Wind Erosion Data

CF Wind erosion equation climatic factor

Soil Data

FC SW Soil water content at field capacity (33 kPa for many soils) (mm-1)

WP SW Soil water content at wilting point (1500 kPa for many soils) (mm-1)

SW Total soil water in the profile (mm-1)

SAT COND Saturated Conductivity of the soil (mm/h)

SSF TIME Lateral subsurface flow travel time (d)

BD 33KPA Moist soil bulk density (t m-3)

BDD OV DRY Dry soil bulk density (t m-3)

…

SM BS Sum of bases in soil (cmol kg-1)

CEC Cation exchange capacity (cmol kg-1)

AL SAT Soil aluminum saturation (%)

CACO3 Free soil calcium carbonate (%)

LAB P labile phosphate by layer

P SORP RTO phosphate sorption coefficient?

MN P AC Mineral P concentration in the active pool (g t-1)

MN P ST Mineral P concentration in the stable pool (g t-1)

ORG P Organic P concentration (g t-1)

NO3 Nitrate concentration (g t-1)

OR N AC Organic N concentration in the active pool (g t-1)

OR N ST Organic N concentration in the stable pool (g t-1)

ORG C Organic C content (%)

CROP RSD Crop residue

RWT Root weight in a soil layer (t ha -1)

Crop Parameters

WA Energy to biomass conversion factor (t ha-1MJ-1m-2)

HI Harvest index (crop yield/above ground biomass)

TB Optimal temperature for plant growth (C)

TG Minimum temperature for plant growth (C)

DMLA Maximum potential leaf area index (m2m-2)

DLAI Fraction of growing season when leaf area index starts declining

LAP1,2 Two points on optimal leaf area development curve. Numbers before decimal are % of growing seasons. Numbers after decimal are fractions of maximum potential leaf area index.

PPL 1 Plant population parameter. Number before decimal is pl/m2. Number after decimal is fraction of species LAI at that population.

PPL 2 Second plant population parameter. Number before decimal is pl/m2 (at a higher density). Number after decimal is fraction of species LAI at that population.

FRS1,2 Two points on the frost damage curve. Numbers before decimal are the minimum temperatures (C) and numbers after decimal are the fraction of biomass lost when specified minimum temperature occurs.

RLAD Leaf area index decline rate parameter

RBMD Biomass energy ratio decline rate parameter

ALT Index of crop tolerance to aluminum saturation (1-5; 1=sensitive, 5=tolerant)

CAF Critical aeration factor- fraction of soil porosity where poor aeration starts limiting plant growth

GSI Maximum stomatal conductance

WAC2 Number before decimal is CO2 concentration in the future. Number after decimal is resultant WA value.

CLAIYR A tree parameter for the number of years until maximum LAI can be attained.

VPTH Threshold VPD

VPD2 Slope of WA:VPD relationship above VPTH

SDW Normal planting rate (kg ha-1)

HMX Maximum crop height (m)

RDMX Maximum root depth (m)

CVM Minimum value of water erosion C factor

CNY Normal fraction of N in yield (g g-1)

CPY Normal fraction on P in yield (g g-1)

WSYF Coefficient of crop yield sensitivity to water stress at the most critical stage of growth

PST Pest damage factor (insects, weeds, disease) – fraction of yield remaining after damage

TREE1,2 ?

BN1 Normal fraction of N in crop biomass at emergence

BN2 Normal fraction of N in crop biomass at midseason

BN3 Normal fraction of N in crop biomass at maturity

BP1 Normal fraction of P in crop biomass at emergence

BP2 Normal fraction of P in crop biomass at midseason

BP3 Normal fraction of P in crop biomass at maturity

BW1 Wind erosion factor for standing live biomass

BW2 Wind erosion factor for standing dead crop residue

BW3 Wind erosion factor for standing flat residue

IDC Crop category number (integer)
1 Warm-season annual legume
2 Cold-season annual legume
3 Perennial legume
4 Warm-season annual
5 Cold-season annual
6 Perennial
7 Tree crop

EXT Extinction coefficient (Kc)

DORMNT Defines the day length in the fall when dormancy begins (1hr greater than the minimum for the latitude)

DMPHT Tree parameter, minimum grams of biomass per M of height for trees

CHTYR Tree parameter, number of years to maximum height of trees (5-25 years)

Rtprt1 Tree parameter, fraction of weight portioned to roots for young plants

GZPAL Grazing palatability index 4highly palatable/first eaten 3palatable 2low palatability/grazed last 1grazed if starving 0not grazed/poisonous

Rtprt2 Tree parameter, fraction of weight portioned to roots for plants near maturity

TREE1(I),TREE2(I),XZ1,XZ2 ?This is removed in the new version

DMLA This DMLA is the DMLA at the end of your run (final)

PHU Potential heat units from planting to physiological maturity (C)

Yearly Output Table

TMX Maximum daily air temperature (C)

TMN Minimum daily air temperature (C)

RAD Solar radiation (MJ m-2)

RAIN Precipitation (mm)

UNO3 N uptake by the crop (kg ha-1)

PEP Potential plant water evaporation (mm)

Q Surface runoff (mm)

SSF Lateral subsurface flow travel time (d)

PRK Percolation below the root zone (mm)

ET Evapotranspiration (mm)

EP Transpiration (mm)

PET Potential evaporation (mm)

TMP Temperature in second soil layer (C)

MUSL Soil loss from water erosion using modified USLE (MUSLE) (t ha-1)

C Average water-erosion/crop-management factor

YW Soil loss from wind erosion (t ha-1)

YON Organic N loss with sediment (kg ha-1)

YNO3 NO3 loss in surface runoff (kg ha-1)

PRKN Mineral N loss in percolate (kg ha-1)

SSFN Mineral N loss in subsurface flow (kg ha-1)

MNN N mineralized (kg ha-1)

IMN N immobilized by decaying residue (kg ha-1)

DN N loss by denitrification (kg ha-1)

NFIX N fixed by leguminous crops (kg ha-1)

NO3 Nitrate concentration (g t-1)

HMN N mineralized from stable organic matter (kg ha-1)

SW Total soil water in the profile (m m-1)

TNO3 Total NO3 present in the soil profile (kg ha-1)

HU1 Heat units – average daily temperature minus base temperature of crop (C)

LAI1 Leaf area index (m2m-2)

RD Root depth (m)

RW1 Total root weight (t ha-1)

BIOM Crop biomass (shoot + root) (t ha-1)

RSD Crop residue on soil surface (t ha-1)

STD Standing dead crop residue (t ha-1)

BDP Bulk density after tillage

STRS The type and number of days of stress by month for the three highest stress variables.
Water=1, N=2, P=3, Temperature=4, Aeration=5.
Example: 411107201 means that there were 11 days of temperature stress (is 411), 7 days of water stress (is 107), and 1 day of nitrogen stress (201).

Yearly Summary Table

HU Heat units – average daily temperature minus base temperature of crop (C)

LAI Leaf area index (m2m-2)

RD Root depth (m)

RW Total root weight (t ha-1)

BIOM Crop biomass (shoot + root) (t ha-1)

CHT Crop height (m)

(crop name) YLD= yield BIOM= biomass IRGA= ? CAW&TAW= Crop available water & Total Available water MXRD= ? .…
RTRN = Total income from crop sales EK = Soil erodibility factor for water erosion WK = Soil erodibility factor for wind erosion MX HU = ? THK = Thickness of soil eroded by wind and water

Final Soil Data

FC SW(M/M) Soil water content at field capacity (33kPa for many soils) (m m-1)

WP SW(M/M) Soil water content at wilting point (1500kPa for many soils) (m m-1)

SW Total soil water in the profile (mm-1)

SAT COND(MM/H) Saturated Conductivity

SSF Lateral subsurface flow travel time (d)

BD 33KPA Moist soil bulk density (t m-3)

BDD OV DRY Dry soil bulk density (t m-3)

…

SM BS(CMOL/KG) Sum of bases in soil (cmol kg-1)

CEC(CMOL/KG) Cation exchange capacity (cmol kg-1)

AL SAT(%) Soil aluminum saturation (%)

CACO3(%) Free soil calcium carbonate (%)

LAB P(G/T) Labile phosphate?

P SORP RTO Phosphate sorption (Not sure about the RTO?)

MN P AC(G/T) Mineral P concentration in the active pool (g t-1)

MN P ST(G/T) Mineral P concentration in the stable pool (g t-1)

ORG P(G/T) Organic P concentration (g t-1)

NO3(G/T) Nitrate concentration (g t-1)

ORG N AC(G/T) Organic N concentration in the active pool (g t-1)

ORG N ST(G/T) Organic N concentration in the stable pool (g t-1)

ORG C(%) Organic C content (%)

CROP RSD(T/HA) Crop residue

RWT(T/HA) Root weight in a soil layer (t ha-1)

Average Monthly Values

C Average water-erosion/crop-management factor

MUSL Soil loss from water erosion using modified USLE (MUSLE) (t ha-1)

YW Soil loss from wind erosion (t ha-1)

RAIN Precipitation (mm)

DAYP Average number of days of rain per month

PRK Percolation below the root zone (mm)

Q Surface runoff (mm)

EI Rainfall energy factor

DAYQ Runoff days

SW Total soil water in the profile (mm-1)

QIN Inflow to the root zone from the water table (mm)

ET Evapotranspiration (mm)

PET Potential evaporation (mm)

TMX Maximum daily air temperature (C)

TMN Minimum daily air temperature (C)

RAD Solar radiation (MJ m-2)

HRLT Day length (h)

Average Annual Values

TMX= Maximum daily air temperature (C) TMN= Minimum daily air temperature (C) RAD= Solar radiation (MJ m-2) RAIN= Precipitation (mm) SNOW= Water content of snowfall (mm) RHUM= Relative humidity UNO3= N uptake by the crop (kg ha-1) PEP= Potential plant water evaporation (mm) Q= Surface runoff (mm)

SSF= Lateral subsurface flow travel time (d) PRK= Percolation below the root zone (mm) ET= Evapotranspiration (mm) EP= Transpiration (mm) PET= Potential evaporation (mm) TMP= Temperature in second soil layer (C) MUSL= Soil loss from water erosion using modified USLE (MUSLE) (t ha-1) C= Average water-erosion/crop-management factor YW= Soil loss from wind erosion (t ha-1)

YON= Organic N loss with sediment (kg ha-1) YNO3= NO3 loss in surface runoff (kg ha-1) PRKN= Mineral N loss in percolate (kg ha-1) SSFN= Mineral N loss in subsurface flow (kg ha-1) MNN= N mineralized (kg ha-1) IMN= N immobilized by decaying residue (kg ha-1) DN= N loss by denitrification (kg ha-1) NFIX= N fixed by leguminous crops (kg ha-1) UNO3= N uptake by the crop (kg ha-1)

HMN= N mineralized from stable organic matter (kg ha-1) IRGA= Irrigation water applied (mm) FN= Average annual N fertilizer rate (kg ha-1) FP= Average annual N fertilizer rate (kg ha-1) CN= SCS runoff curve number HU2= Heat units – average daily temperature minus base temperature of crop (C) ? LAI2= Leaf area index (m2m-2) ? WVL= Wind velocity (m s-1) PEP=Potential plant water evaporation (mm)

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