

IWM - Samples

Modified Blaney-Criddle Consumptive Use Computations

USDA, NATURAL RESOURCES CONSERVATION SERVICE

MODIFIED BLANEY-CRIDDLE CONSUMPTIVE USE USING A- 1 -HUMID AREA ADJUSTMENT FACTOR

Station used - Fort Worth, Texas

Latitude- 32 degrees 50 minutes

Planting or planting date March 15

Ending or harvest date- August 21

Net Irrigation Application = 2.5 Inches

CROP - CORN-grain -----GSC # 19

Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Mean Temp	45.5	49.2	55.9	64.8	72.7	81.5	85.4	85.4	78.4	67.9	54.8	47.7	
Mean Precip	2.04	2.24	2.51	3.60	4.59	2.98	1.75	1.68	2.54	2.59	2.46	2.35	31.33
%DLH	7.16	6.94	8.36	8.76	9.66	9.64	9.82	9.29	8.35	7.93	7.07	7.00	
KT	0.00	0.00	0.65	0.81	0.94	1.10	1.16	1.16	0.00	0.00	0.00	0.00	
KC	0.00	0.00	0.52	0.62	0.96	1.08	0.99	0.80	0.00	0.00	0.00	0.00	
K	0.00	0.00	0.34	0.50	0.91	1.18	1.15	0.93	0.00	0.00	0.00	0.00	
F	0.00	0.00	2.43	5.68	7.02	7.86	8.38	5.22	0.00	0.00	0.00	0.00	
Inches/ Month	0.00	0.00	0.82	2.86	6.36	9.26	9.64	4.86	0.00	0.00	0.00	0.00	
Cum es	0.00	0.00	0.82	3.68	10.04	19.30	28.95	33.81	0.00	0.00	0.00	0.00	33.81
Inches/ Day	0.00	0.00	0.05	0.10	0.21	0.31	0.31	0.23	0.00	0.00	0.00	0.00	
Peak Use							0.37	(inches /day)					

(The net irrigation requirement with the end of season soil moisture at 50% of available waterholding capacity)

Effect Rain	0.00	0.00	0.82	1.20	1.80	1.45	0.92	0.68	0.00	0.00	0.00	0.00	6.87
Net Irr Requir	0.00	0.00	0.00	1.66	4.56	7.81	8.72	4.18	0.00	0.00	0.00	0.00	26.94

By Net Irrigation Application

Available Waterholding Capacity - 5 Inches

Initial Soil Moisture - 2.5 Inches

(Irrigation applied when soil moisture depletion = 2.5 inches)

Effect Rain	0.00	0.00	0.82	1.20	1.80	1.45	0.92	0.68	0.00	0.00	0.00	0.00	6.87
Soil Moist	0.00	0.00	2.50	5.00	3.34	3.78	3.47	4.74	0.00	0.00	0.00	0.00	
Irrigat	0.00	0.00	2.50	0.00	5.00	7.50	10.00	2.50	0.00	0.00	0.00	0.00	27.50

Soil Moisture at the end of season = 3.06 inches

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MODIFIED BLANEY-CRIDDLE CONSUMPTIVE USE USING A- 1 -HUMID AREA ADJUSTMENT FACTOR

Station used - Fort Worth, Texas

Latitude- 32 degrees 50 minutes

Beginning or planting date May 1 Ending or harvest date- Sept. 15 Net Irrigation Application = 2.5 Inches

CROP - SOYBEANS -----GSC # 46

Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	Total
Mean Temp	45.5	49.2	55.9	64.8	72.7	81.5	85.4	85.4	78.4	67.9	54.8	47.7	
Mean Precip	2.04	2.24	2.51	3.60	4.59	2.98	1.75	1.68	2.54	2.59	2.46	2.35	31.33
Inches /Mo	0.00	0.00	0.00	0.00	3.26	5.90	9.53	8.33	2.43	0.00	0.00	0.00	
CUM Inches	0.00	0.00	0.00	0.00	3.26	9.16	18.69	27.01	29.44	0.00	0.00	0.00	29.44
Inches /Day	0.00	0.00	0.00	0.00	0.11	0.20	0.31	0.27	0.16	0.00	0.00	0.00	
Peak Use							0.37 (inches/Days)						

(The net irrigation requirement with the end of season soil moisture at 50% of available waterholding capacity)

Effect Rain	0.00	0.00	0.00	0.00	1.99	1.75	1.33	1.20	1.25	0.00	0.00	0.00	7.52
Net Irr Requir	0.00	0.00	0.00	0.00	1.27	4.15	8.20	7.13	0.18	0.00	0.00	0.00	20.92

**By net irrigation application Available Waterholding capacity - 5 inches Initial soil moisture - 3.5 inches
(Irrigation applied when soil moisture depletion = 2.5 inches)**

Effect Rain	0.00	0.00	0.00	0.00	1.99	1.75	1.33	1.20	1.25	0.00	0.00	0.00	7.52
Soil Moist	0.00	0.00	0.00	0.00	3.50	4.73	3.08	4.88	2.75	0.00	0.00	0.00	
Net Irrigat	0.00	0.00	0.00	0.00	2.50	2.50	10.00	5.00	2.50	0.00	0.00	0.00	22.50

Soil moisture at the end of season = 4.08 inches

USDA - NRCS CHECKBOOK METHOD FOR IRRIGATION SCHEDULING
 *** CROP WATER USE TABLES ***

For CORN-grain ----- At Fort Worth, Texas

Using a (1) Humid area adjustment factor with modified Blaney-Criddle Consumptive use

Planting Date - March 15

Harvest Date - August 21

Average water use (inches) by the crop for the normal daily "high" temperature and for daily high temperatures 5 and 10 degrees below normal and 5 and 10 degrees above normal.

DATE	-10 degrees degrees/inches	-5 degrees degrees/inches	NORMAL degrees/inches	+ 5 degrees degrees/inches	+ 10 degrees degrees/inches
MAR 11	56 / .03	61 / .04	66 / .05	71 / .06	76 / .08
MAR 21	59 / .03	64 / .04	69 / .06	74 / .07	79 / .08
APR 1	62 / .05	67 / .06	72 / .08	77 / .09	82 / .11
APR 11	65 / .06	70 / .08	75 / .10	80 / .11	85 / .13
APR 21	67 / .08	72 / .10	77 / .12	82 / .15	87 / .17
MAY 1	70 / .11	75 / .14	80 / .16	85 / .19	90 / .22
MAY 11	72 / .15	78 / .18	83 / .21	88 / .24	93 / .28
MAY 21	76 / .16	81 / .19	86 / .22	91 / .26	96 / .30
JUNE 1	79 / .20	84 / .24	89 / .28	94 / .32	99 / .37
JUNE 11	82 / .23	87 / .27	92 / .31	97 / .35	102 / .40
JUNE 21	83 / .24	88 / .28	93 / .32	98 / .36	103 / .41
JULY 1	84 / .24	89 / .28	94 / .32	99 / .37	104 / .42
JULY 11	85 / .24	90 / .28	95 / .32	100 / .37	105 / .41
JULY 21	85 / .20	90 / .23	95 / .26	100 / .30	105 / .34
AUG 1	85 / .19	90 / .22	95 / .25	100 / .29	105 / .32
AUG 11	85 / .17	90 / .20	95 / .23	100 / .26	105 / .29
AUG 21	83 / .12	88 / .14	93 / .16	98 / .18	103 / .20
SEPT 1					

The total normal seasonal water use is 33.4 inches

USDA - NRCS CHECKBOOK METHOD FOR IRRIGATION SCHEDULING

*** CROP WATER USE TABLES ***

For SOYBEANS ----- At Fort Worth, Texas

Using a (1) Humid area adjustment factor with modified Blaney-Criddle Consumptive use

Planting Date - May 1 Harvest Date - September 15

Average water use (inches) by the crop for the normal daily "high" temperature and for daily high temperatures 5 and 10 degrees below normal and 5 and 10 degrees above normal.

DATE	-10 degrees degrees/inches	-5 degrees degrees/inches	NORMAL degrees/inches	+ 5 degrees degrees/inches	+ 10 degrees degrees/inches
MAY 1	70/.07	75/.08	80/.10	85/.12	90/.13
MAY 11	73/.08	78/.10	83/.12	88/.14	93/.16
MAY 21	76/.09	81/.11	86/.13	91/.15	96/.17
JUNE 1	79/.12	84/.14	89/.16	94/.19	99/.22
JUNE 11	82/.15	87/.17	92/.20	97/.23	102/.26
JUNE 21	83/.17	88/.20	93/.23	98/.26	103/.29
JULY 1	84/.20	89/.23	94/.27	99/.31	104/.35
JULY 11	85/.24	90/.27	95/.31	100/.36	105/.40
JULY 21	85/.23	90/.26	95/.30	100/.34	105/.39
AUG 1	85/.24	90/.28	95/.33	100/.37	105/.42
AUG 11	85/.21	90/.25	95/.28	100/.32	105/.36
AUG 21	83/.15	88/.17	93/.20	98/.23	103/.26
SEPT 1	81/.13	86/.15	91/.18	96/.20	101/.23
SEPT 11	78/.11	83/.13	88/.15	93/.18	98/.20
SEPT 21					

The total normal seasonal water use is 29.3 inches

**USDA - NRCS CHECKBOOK METHOD FOR IRRIGATION SCHEDULING
WORKBOOK SHEET FOR _____ (month)**

FARM _____ **CROP** _____

PLANTING DATE _____

SOIL TYPE _____ **ROOTING DEPTH** _____ inches.

AVAILABLE WATER HOLDING CAPACITY _____ inches.

READILY AVAILABLE MOISTURE _____ %, or _____ inches.

TYPE OF IRRIGATION SYSTEM _____

WATER APPLICATION EFFICIENCY _____ %

IRRIGATION APPLICATION, NET= _____ inches **AND GROSS =** _____ inches.

Day	Maximum Temperature	Crop Water Use (inches)	Net Irrigation (inches)	Effective Rainfall (inches)	Readily * Available Moisture (inches)	Days Until Next Irrigation
Carry over from previous month ()						
1						
2						
3						
4						
5						
6						
7						
8						
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30						
31						

***Readily Available Moisture = Readily Available moisture - Crop water + Net Irrigation + Effective Rainfall from Previous Day**