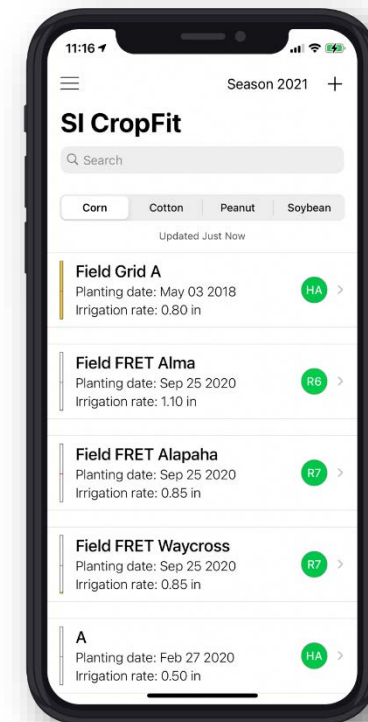


CropFit – an Integrated SmartIrrigation Mobile App for Corn, Cotton, Peanut, and Soybean



George Vellidis, Jose Andreis, Chris Butts, Ioannis Gallios, Vasileios Liakos,
Brenda Ortiz, Cristiane Pilon



Smartphone Apps for Irrigation Scheduling



Avocado



Blueberry



Citrus



Peach



Pecan

In Development



Strawberry



Turf



Vegetable



Corn



Cotton



Soybean

Available for
iOS and Android

To download, search for
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stores or click on the link below,

Smartphone Apps for Irrigation Scheduling

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iOS and Android



Avocado



Blueberry



Citrus



Peach



Pecan

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Strawberry



Turf



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CropFit



Corn



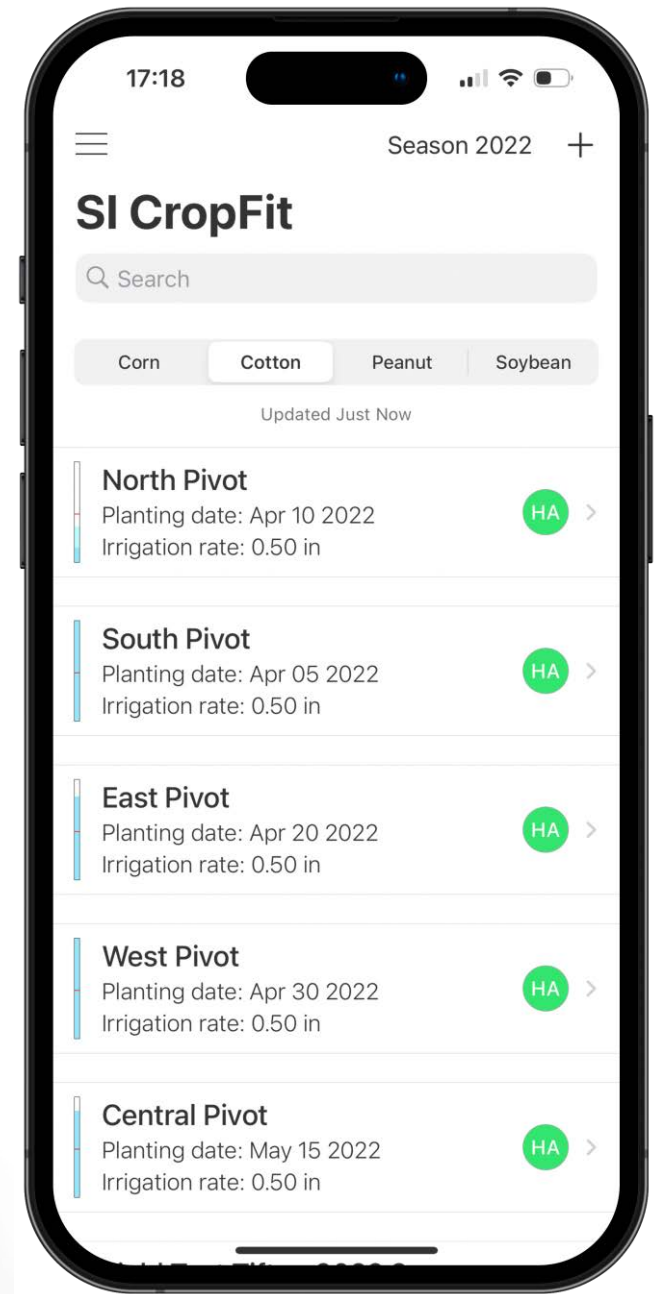
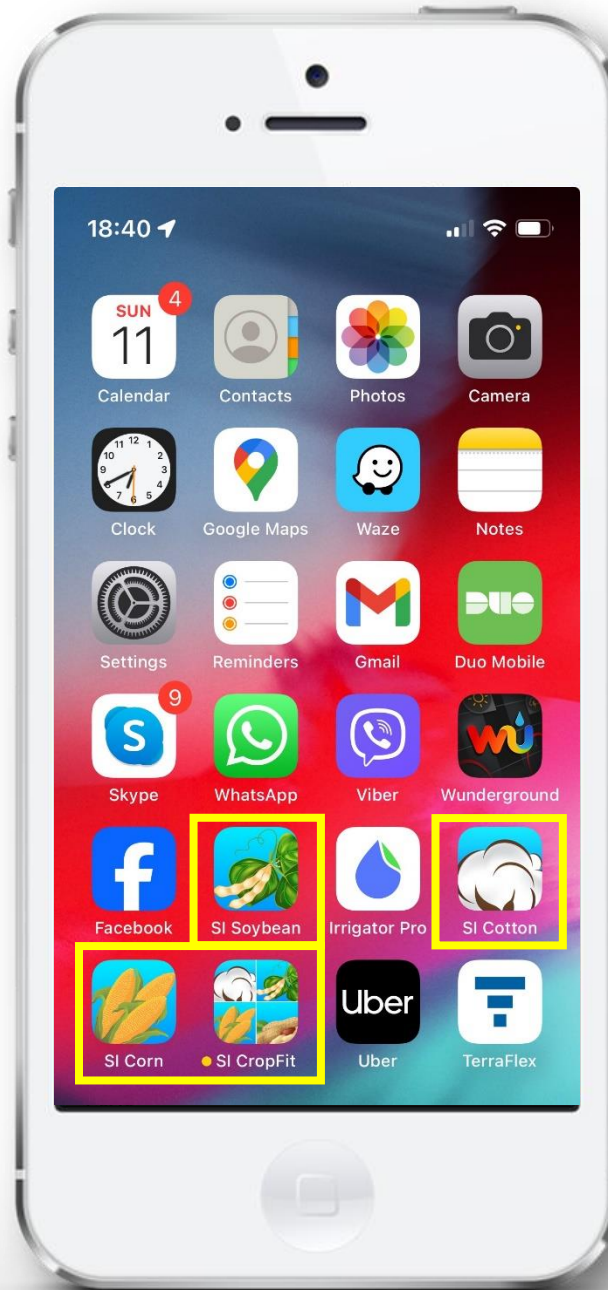
Cotton



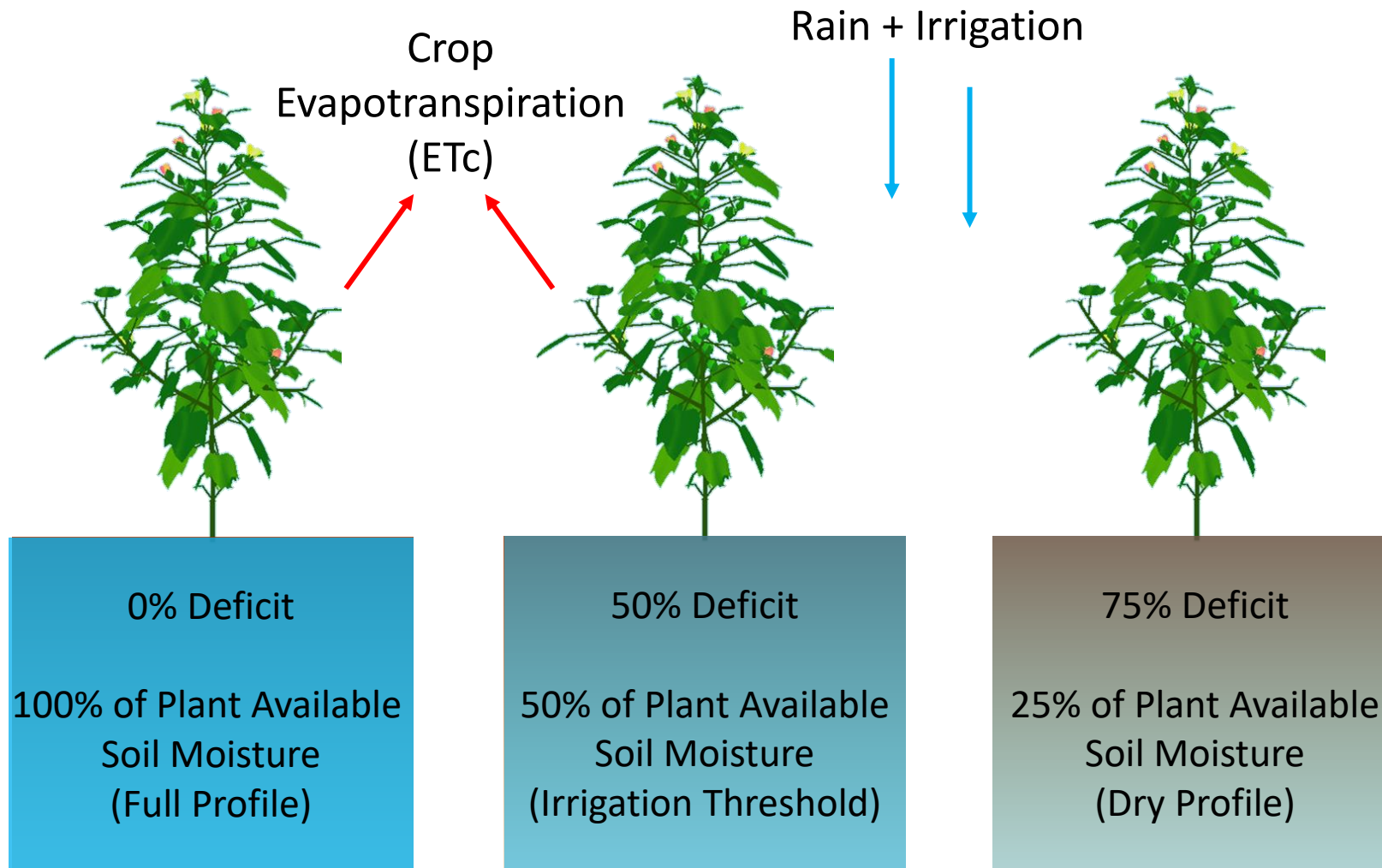
Soybean

+ Peanut

To download, search for
“Smartirrigationapps” in the app
stores or click on the link below,



Soil Profile Water Balance Using the FAO-56 Method



$$ET_c = ET_o \times K_c$$

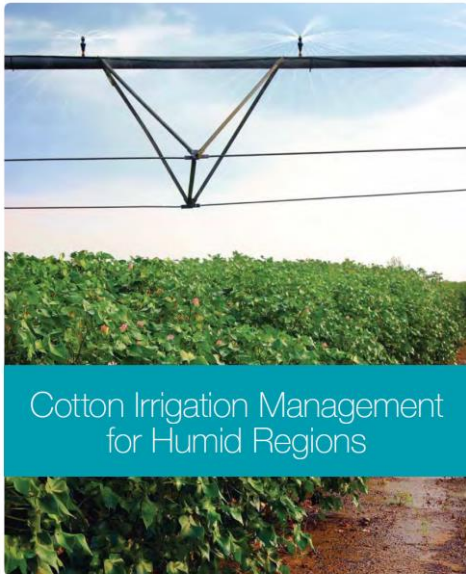
where

ET_c = estimated crop ET

K_c = crop coefficient

ET_o = Penman-Monteith reference ET (FAO 56)

Cotton Growth and Development

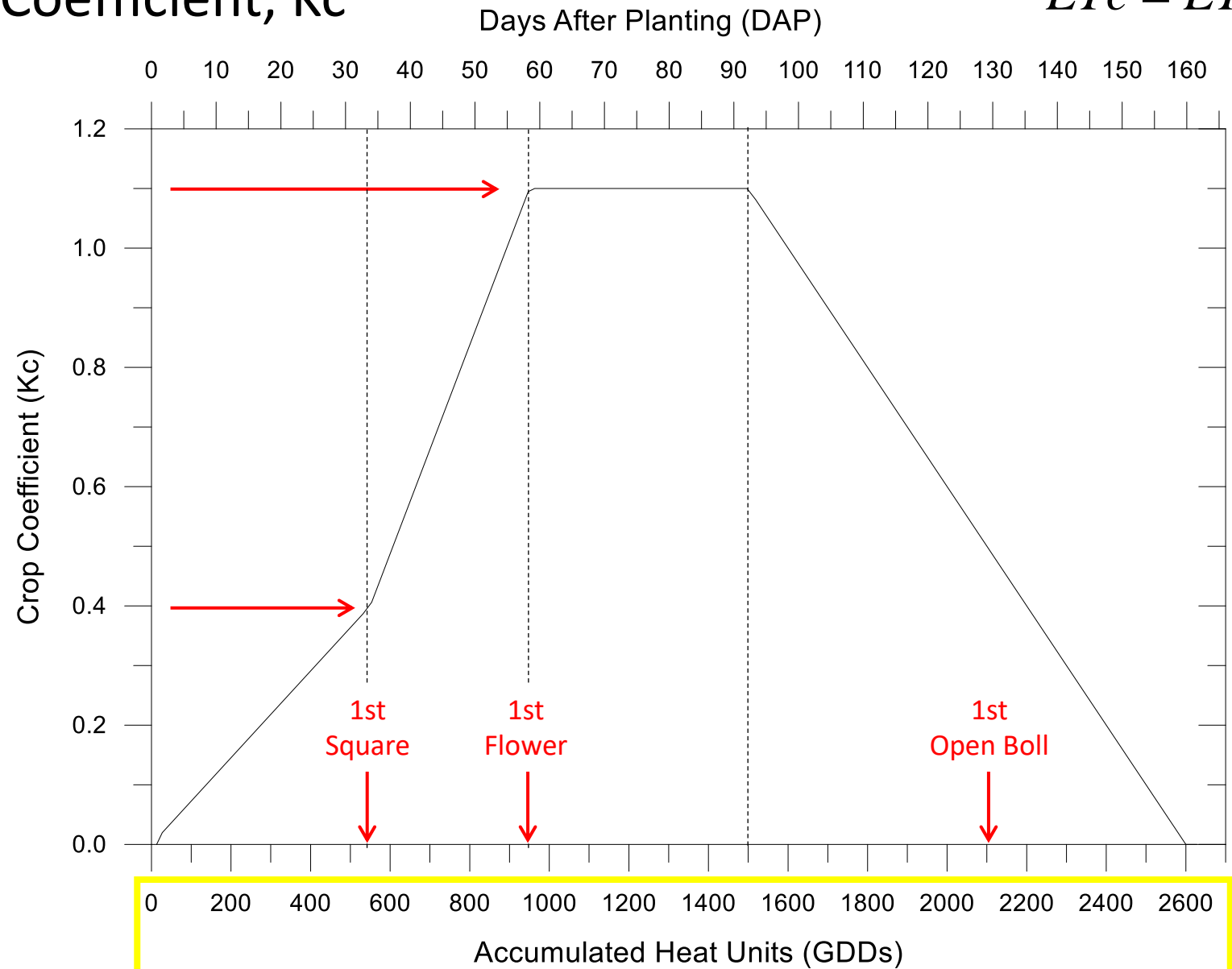


Cotton Irrigation Management for Humid Regions



Crop Coefficient, Kc

$$ET_c = ET_o \times K_c$$



Smartirrigation Cotton																	
User: yiorgos@uga.edu																	
Field: SIRP Cotton 2023 Planting date: May-08-2023 Lat: 31.278666, Lon: -84.296764 Weather Data Source: AEMN - Camilla																	
Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Phenological Stage	Evapotran spiration Eto (in)	Crop Coeff. (KC)	Crop		Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)
						Evapotran spiration. (Et*KC in)											
Jul-13-2023	66	1098	First Flower	0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22	
Jul-14-2023	67	1116	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0	
Jul-15-2023	68	1136	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3	
Jul-16-2023	69	1156	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5	
Jul-17-2023	70	1174	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0	
Jul-18-2023	71	1197	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5	
Jul-19-2023	72	1217	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10	
Jul-20-2023	73	1240	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15	
Jul-21-2023	74	1265	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20	
Jul-22-2023	75	1291	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16	
Jul-23-2023	76	1307	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9	
Jul-24-2023	77	1325	First Flower	0.1234	1.1	0.13574	29.1	4.4604	-	0	0.0098	-	0.0088	WS 2146	0.5075	11	
Jul-25-2023	78	1345	First Flower	0.1831	1.1	0.20141	29.4	4.5063	-	0	0	-	0	WS 2146	0.7001	16	
Jul-26-2023	79	1364	First Flower	0.2002	1.1	0.22022	29.7	4.5522	-	0	0	-	0	WS 2146	0.9203	20	
Jul-27-2023	80	1388	First Flower	0.2176	1.1	0.23936	30	4.5441	-	0	0	-	0	WS 2146	1.1597	26	
Jul-28-2023	81	1411	First Flower	0.211	1.1	0.2321	30	4.59	-	0	0	-	0	WS 2146	1.3918	30	
Jul-29-2023	82	1433	First Flower	0.1552	1.1	0.17072	30	4.59	-	0	0	-	0	WS 2146	1.5625	34	
Jul-30-2023	83	1453	First Flower	0.1067	1.1	0.11737	30	4.59	-	0	0	-	0	WS 2146	1.6799	37	
Jul-31-2023	84	1472	First Flower	0.17	1.1	0.187	30	4.59	0.75	0.64	0	-	0	WS 2146	1.8669	41	
Aug-01-2023	85	1494	First Flower	0.2003	1.1	0.22033	30	4.59	-	0	0	-	0	WS 2146	1.4497	32	
Aug-02-2023	86	1516	First Flower	0.218	1.1	0.2398	30	4.59	-	0	0	-	0	WS 2146	1.6895	37	
Aug-03-2023	87	1539	First Flower	0.1987	1.1	0.21857	30	4.59	-	0	0	-	0	WS 2146	1.9081	42	
Aug-04-2023	88	1562	First Flower	0.1966	1.1	0.21626	30	4.59	0.75	0.64	0	-	0	WS 2146	2.1244	46	
Aug-05-2023	89	1584	First Flower	0.1732	1.1	0.19052	30	4.59	0	0	0	-	0	WS 2146	1.6774	37	
Aug-06-2023	90	1607	First Flower	0.2083	1.1	0.22913	30	4.59	-	0	0.55	-	0.495	WS 2146	1.9065	42	
Aug-07-2023	91	1629	First Flower	0.1935	1.1	0.21285	30	4.59	0.75	0.64	0	-	0	WS 2146	1.6244	35	
Aug-08-2023	92	1652	First Flower	0.2136	1.1	0.23496	30	4.59	-	0	0	-	0	WS 2146	1.2219	27	
Aug-09-2023	93	1674	First Flower	0.1743	1.1	0.19173	30	4.59	-	0	0	-	0	WS 2146	1.4136	31	
Aug-10-2023	94	1696	First Flower	0.1886	1.1	0.20746	30	4.59	-	0	0	-	0	WS 2146	1.6211	35	
Aug-11-2023	95	1721	First Flower	0.2236	1.1	0.24596	30	4.59	0.75	0.64	0.0098	-	0.0088	WS 2146	1.8671	41	
Aug-12-2023	96	1742	First Flower	0.1638	1.1	0.18018	30	4.59	-	0	0.2902	-	0.2612	WS 2146	1.401	31	
Aug-13-2023	97	1764	First Flower	0.207	1.1	0.2277	30	4.59	-	0	0	-	0	WS 2146	1.3675	30	
Aug-14-2023	98	1787	First Flower	0.2214	1.1	0.24354	30	4.59	-	0	0.25	-	0.225	WS 2146	1.611	35	
Aug-15-2023	99	1811	First Flower	0.1926	1.0849	0.20895	30	4.59	-	0	0	-	0	WS 2146	1.5949	35	
Aug-16-2023	100	1832	First Flower	0.1915	1.056	0.20222	30	4.59	-	0	0.35	-	0.315	WS 2146	1.7971	39	

Smartirrigation Cotton

User: yiorgos@uga.edu

Field: SIRP Cotton 2023 | Planting date: May-08-2023 | Lat: 31.278666, Lon: -84.296764 | Weather Data Source: AEMN - Camilla

Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Root Depth (in)	Available Soil Water (in)	Crop		Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)
					Crop Coeff. (KC)	Evapotran spiration. (E*KC in)								
Jul-13-2023	66	1098			0.9902	0.20745		0	1.1402		1.0262	WS 2146	0.8547	22
Jul-14-2023	67	1116			1.0095	0.17454		0	0.0402		0.0362	WS 2146	0.0031	0
Jul-15-2023	68	1136			1.0311	0.13693		0	0.1098		0.0988	WS 2146	0.1038	3
Jul-16-2023	69	1156			1.0526	0.19947		0	0.5		0.45	WS 2146	0.2045	5
Jul-17-2023	70	1174	25.8	3.9555	1.072	0.15887		0	0		0	WS 2146	0	0
Jul-18-2023	71	1197	26.1	4.0014	1.0968	0.21179		0	0		0	WS 2146	0.2118	5
Jul-19-2023	72	1217	26.4	4.0473	1.1	0.22396		0	0		0	WS 2146	0.4358	10
Jul-20-2023	73	1240	26.7	4.0932	1.1	0.2167		0	0		0	WS 2146	0.6525	15
Jul-21-2023	74	1265	27	4.1391	1.1	0.22858		0	0.45		0.405	WS 2146	0.8811	20
Jul-22-2023	75	1291	27.3	4.185	1.1	0.23298		0	0.4799		0.4319	WS 2146	0.7091	16
Jul-23-2023	76	1307	27.6	4.2309	1.1	0.21155		0	0.0299		0.0269	WS 2146	0.3987	9
Jul-24-2023	77	1325	27.9	4.2768	1.1	0.13574		0	0.0098		0.0088	WS 2146	0.5075	11
Jul-25-2023	78	1345	28.2	4.3227	1.1	0.20141		0	0		0	WS 2146	0.7001	16
Jul-26-2023	79	1364	28.5	4.3686	1.1	0.22022		0	0		0	WS 2146	0.9203	20
Jul-27-2023	80	1388	28.8	4.4145	1.1	0.23936		0	0		0	WS 2146	1.1597	26
Jul-28-2023	81	1411	29.1	4.4604	1.1	0.2321		0	0		0	WS 2146	1.3918	30
Jul-29-2023	82	1433	29.4	4.5063	1.1	0.17072		0	0		0	WS 2146	1.5625	34
Jul-30-2023	83	1453	29.7	4.5522	1.1	0.11737		0	0		0	WS 2146	1.6799	37
Jul-31-2023	84	1472	30	4.59	1.1	0.187	0.75	0.64	0		0	WS 2146	1.8669	41
Aug-01-2023	85	1494	30	4.59	1.1	0.22033		0	0		0	WS 2146	1.4497	32
Aug-02-2023	86	1516	30	4.59	1.1	0.2398		0	0		0	WS 2146	1.6895	37
Aug-03-2023	87	1539	30	4.59	1.1	0.21857		0	0		0	WS 2146	1.9081	42
Aug-04-2023	88	1562	30	4.59	1.1	0.21626	0.75	0.64	0		0	WS 2146	2.1244	46
Aug-05-2023	89	1584	30	4.59	1.1	0.19052	0	0	0		0	WS 2146	1.6774	37
Aug-06-2023	90	1607	30	4.59	1.1	0.22913		0	0.55		0.495	WS 2146	1.9065	42
Aug-07-2023	91	1629	30	4.59	1.1	0.21285	0.75	0.64	0		0	WS 2146	1.6244	35
Aug-08-2023	92	1652	30	4.59	1.1	0.23496		0	0		0	WS 2146	1.2219	27
Aug-09-2023	93	1674	30	4.59	1.1	0.19173		0	0		0	WS 2146	1.4136	31
Aug-10-2023	94	1696	30	4.59	1.1	0.20746		0	0		0	WS 2146	1.6211	35
Aug-11-2023	95	1721	30	4.59	1.1	0.24596	0.75	0.64	0.0098		0.0088	WS 2146	1.8671	41
Aug-12-2023	96	1742	30	4.59	1.1	0.18018		0	0.2902		0.2612	WS 2146	1.401	31
Aug-13-2023	97	1764	30	4.59	1.1	0.2277		0	0		0	WS 2146	1.3675	30
Aug-14-2023	98	1787	30	4.59	1.1	0.24354		0	0.25		0.225	WS 2146	1.611	35
Aug-15-2023	99	1811	30	4.59	1.0849	0.20895		0	0		0	WS 2146	1.5949	35
Aug-16-2023	100	1832	First Flower	0.1915	1.056	0.20222		0	0.35		0.315	WS 2146	1.7971	39

Smartirrigation Cotton

User: yiorgos@uga.edu

Field: SIRP Cotton 2023 | Planting date: May-08-2023 | Lat: 31.278666, Lon: -84.296764 | Weather Data Source: AEMN - Camilla

Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Phenological Stage	Crop										Water Deficit (in)	Water Deficit (%)	
				Evapotran spiration Eto (in)	Crop Coeff. (KC)	Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)			Rain Source
Jul-13-2023	66	1098	First Flower	0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22
Jul-14-2023	67	1116	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Jul-15-2023	68	1136	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Jul-16-2023	69	1156	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Jul-17-2023	70	1174	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Jul-18-2023	71	1197	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Jul-19-2023	72	1217	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Jul-20-2023	73	1240	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Jul-21-2023	74	1265	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Jul-22-2023	75	1291	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Jul-23-2023	76	1307	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9
Jul-24-2023																
Jul-25-2023																
Jul-26-2023																
Jul-27-2023																
Jul-28-2023																
Jul-29-2023																
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Aug-06-2023																
Aug-07-2023																
Aug-08-2023																
Aug-09-2023																
Aug-10-2023																
Aug-11-2023																
Aug-12-2023																
Aug-13-2023																
Aug-14-2023																
Aug-15-2023																
Aug-16-2023	100	1832	First Flower	0.1915	1.056	0.20222	30	4.59	-	0	0.35	-	0.315	WS 2146	1.7971	39

Smartirrigation Cotton

User: yiorgos@uga.edu

Field: SIRP Cotton 2023 | Planting date: May-08-2023 | Lat: 31.278666, Lon: -84.296764 | Weather Data Source: AEMN - Camilla

Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Phenological Stage	Crop										Water Deficit (in)	Water Deficit (%)	
				Evapotran spiration Eto (in)	Crop Coeff. (KC)	Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)			Rain Source
Jul-13-2023	66	1098	First Flower	0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22
Jul-14-2023	67	1116	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Jul-15-2023	68	1136	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Jul-16-2023	69	1156	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Jul-17-2023	70	1174	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Jul-18-2023	71	1197	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Jul-19-2023	72	1217	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Jul-20-2023	73	1240	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Jul-21-2023	74	1265	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Jul-22-2023	75	1291	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Jul-23-2023	76	1307	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9

Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Phenological Stage	Crop										Water Deficit (in)	Water Deficit (%)	
				Evapotran spiration Eto (in)	Crop Coeff. (KC)	Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)			Rain Source
Jul-24-2023	77	1324	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Jul-25-2023	78	1342	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Jul-26-2023	79	1360	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9
Jul-27-2023	80	1378	First Flower	0.1234	1.1	0.13574	29.1	4.4604	-	0	0.0098	-	0.0088	WS 2146	0.5075	11
Jul-28-2023	81	1396	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Jul-29-2023	82	1414	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Jul-30-2023	83	1432	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Jul-31-2023	84	1450	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Aug-01-2023	85	1468	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Aug-02-2023	86	1486	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Aug-03-2023	87	1504	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Aug-04-2023	88	1522	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Aug-05-2023	89	1540	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Aug-06-2023	90	1558	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9
Aug-07-2023	91	1576	First Flower	0.1234	1.1	0.13574	29.1	4.4604	-	0	0.0098	-	0.0088	WS 2146	0.5075	11
Aug-08-2023	92	1594	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Aug-09-2023	93	1612	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Aug-10-2023	94	1630	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Aug-11-2023	95	1648	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Aug-12-2023	96	1666	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Aug-13-2023	97	1684	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Aug-14-2023	98	1702	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Aug-15-2023	99	1720	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Aug-16-2023	100	1832	First Flower	0.1915	1.056	0.20222	30	4.59	-	0	0.35	-	0.315	WS 2146	1.7971	39

Smartirrigation Cotton

User: yiorgos@uga.edu

Field: SIRP Cotton 2023 | Planting date: May-08-2023 | Lat: 31.278666, Lon: -84.296764 | Weather Data Source: AEMN - Camilla

Date	Days After Planting (DAP)	Acc. Heat Units (GDD 60F)	Phenological Stage	Crop												
				Evapotran spiration (Eto (in))	Crop Coeff. (KC)	Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)
Jul-13-2023	66	1098	First Flower	0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22
Jul-14-2023	67	1116	First Flower	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Jul-15-2023	68	1136	First Flower	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Jul-16-2023	69	1156	First Flower	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Jul-17-2023	70	1174	First Flower	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Jul-18-2023	71	1197	First Flower	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Jul-19-2023	72	1217	First Flower	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Jul-20-2023	73	1240	First Flower	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Jul-21-2023	74	1265	First Flower	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Jul-22-2023	75	1291	First Flower	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Jul-23-2023	76	1307	First Flower	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9

Evapotran spiration (Eto (in))	Crop Coeff. (KC)	Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)
0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22
0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9
0.1234	1.1	0.13574	29.1	4.4604	-	0	0.0098	-	0.0088	WS 2146	0.5075	11

Aug-16-2023	100	1832	First Flower	0.1915	1.056	0.20222	30	4.59	-	0	0.35	-	0.315	WS 2146	1.7971	39
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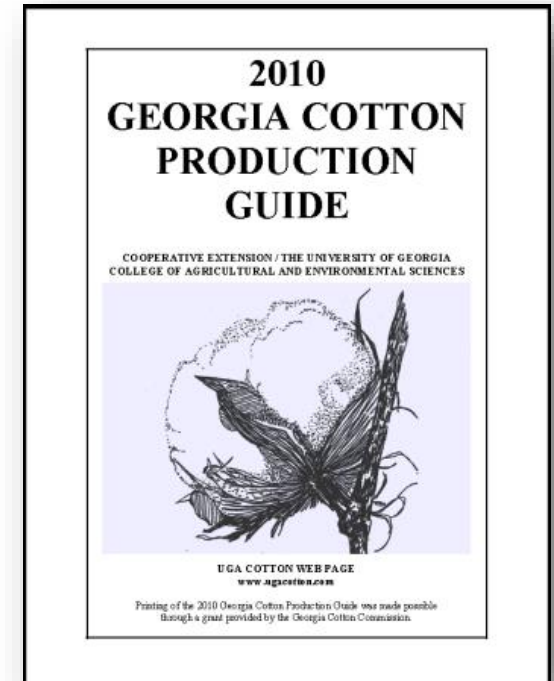
Date	Crop Coeff. (KC)	Crop Evapotran spiration. (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)	Water Deficit (in)	Water Deficit (%)	
	1.1	0.2321	30	4.59	-	0	0	-	0	WS 2146	1.3918	30			
Jul-13-2023	1.1	0.17072	30	4.59	-	0	0	-	0	WS 2146	1.5625	34	6	0.8547	22
Jul-14-2023	1.1	0.11737	30	4.59	-	0	0	-	0	WS 2146	1.6799	37	6	0.0031	0
Jul-15-2023	1.1	0.187	30	4.59	0.75	0.64	0	-	0	WS 2146	1.8669	41	6	0.1038	3
Jul-16-2023	1.1	0.22033	30	4.59	-	0	0	-	0	WS 2146	1.4497	32	6	0.2045	5
Jul-17-2023	1.1	0.2398	30	4.59	-	0	0	-	0	WS 2146	1.6895	37	6	0	0
Jul-18-2023	1.1	0.2398	30	4.59	-	0	0	-	0	WS 2146	1.6895	37	6	0.2118	5
Jul-19-2023	1.1	0.21857	30	4.59	-	0	0	-	0	WS 2146	1.9081	42	6	0.4358	10
Jul-20-2023	1.1	0.21626	30	4.59	-	0	0	-	0	WS 2146	1.9081	42	6	0.6525	15
Jul-21-2023	1.1	0.21626	30	4.59	0.75	0.64	0	-	0	WS 2146	2.1244	46	6	0.8811	20
Jul-22-2023	1.1	0.19052	30	4.59	0	0	0	-	0	WS 2146	1.6774	37	6	0.7091	16
Jul-23-2023	1.1	0.22913	30	4.59	-	0	0.55	-	0.495	WS 2146	1.9065	42	6	0.3987	9
Jul-24-2023	1.1	0.21285	30	4.59	0.75	0.64	0	-	0	WS 2146	1.6244	35	6	0.5075	11
Jul-25-2023	1.1	0.21285	30	4.59	0.75	0.64	0	-	0	WS 2146	1.6244	35	6	0.7001	16
Jul-26-2023	1.1	0.23496	30	4.59	-	0	0	-	0	WS 2146	1.2219	27	6	0.9203	20
Jul-27-2023	80	1388	First Flower		0.2176	1.1	0.23936	30	4.5441		0	0	WS 2146	1.1597	26
Jul-28-2023	81	1411	First Flower		0.211	1.1	0.2321	30	4.59		0	0	WS 2146	1.3918	30
Jul-29-2023	82	1433	First Flower		0.1552	1.1	0.17072	30	4.59		0	0	WS 2146	1.5625	34
Jul-30-2023	83	1453	First Flower		0.1067	1.1	0.11737	30	4.59		0	0	WS 2146	1.6799	37
Jul-31-2023	84	1472	First Flower		0.17	1.1	0.187	30	4.59	0.75	0.64	0	WS 2146	1.8669	41
Aug-01-2023	85	1494	First Flower		0.2003	1.1	0.22033	30	4.59		0	0	WS 2146	1.4497	32
Aug-02-2023	86	1516	First Flower		0.218	1.1	0.2398	30	4.59		0	0	WS 2146	1.6895	37
Aug-03-2023	87	1539	First Flower		0.1987	1.1	0.21857	30	4.59		0	0	WS 2146	1.9081	42
Aug-04-2023	88	1562	First Flower		0.1966	1.1	0.21626	30	4.59	0.75	0.64	0	WS 2146	2.1244	46
Aug-05-2023	89	1584	First Flower		0.1732	1.1	0.19052	30	4.59	0	0	0	WS 2146	1.6774	37
Aug-06-2023	90	1607	First Flower		0.2083	1.1	0.22913	30	4.59		0	0.55	WS 2146	1.9065	42
Aug-07-2023	91	1629	First Flower		0.1935	1.1	0.21285	30	4.59	0.75	0.64	0	WS 2146	1.6244	35
Aug-08-2023	92	1652	First Flower		0.2136	1.1	0.23496	30	4.59		0	0	WS 2146	1.2219	27
Aug-09-2023	93	1674	First Flower		0.1743	1.1	0.19173	30	4.59		0	0	WS 2146	1.4136	31
Aug-10-2023	94	1696	First Flower		0.1886	1.1	0.20746	30	4.59		0	0	WS 2146	1.6211	35
Aug-11-2023	95	1721	First Flower		0.2236	1.1	0.24596	30	4.59	0.75	0.64	0.0098	WS 2146	1.8671	41
Aug-12-2023	96	1742	First Flower		0.1638	1.1	0.18018	30	4.59		0	0.2902	WS 2146	1.401	31
Aug-13-2023	97	1764	First Flower		0.207	1.1	0.2277	30	4.59		0	0	WS 2146	1.3675	30
Aug-14-2023	98	1787	First Flower		0.2214	1.1	0.24354	30	4.59		0	0.25	WS 2146	1.611	35
Aug-15-2023	99	1811	First Flower		0.1926	1.0849	0.20895	30	4.59		0	0	WS 2146	1.5949	35
Aug-16-2023	100	1832	First Flower		0.1915	1.056	0.20222	30	4.59		0	0.35	WS 2146	1.7971	39

UGA Extension Checkbook (Calendar) Method

Cotton Irrigation Schedule Suggested For High Yields

	<u>900/1100 lb/A</u>		<u>1200/1500 lb/A</u>	
	<u>In./Week</u>	<u>In./Day</u>	<u>In./Week</u>	<u>In./Day</u>
Wk. beginning at 1st bloom	1	0.15	1.5	0.22
2nd wk. after 1st bloom	1.5	0.22	1.5	0.22
3rd wk. after 1st bloom	2	0.3	2.5	0.36
4th wk. after 1st bloom	2	0.3	2.5	0.36
5th wk. after 1st bloom	1.5	0.22	2.5	0.36
6th wk. after 1st bloom	1.5	0.22	2	0.3
7th wk. after 1st bloom	1	0.15	2	0.3

Weekly quantities should be increased to compensate for run-off.



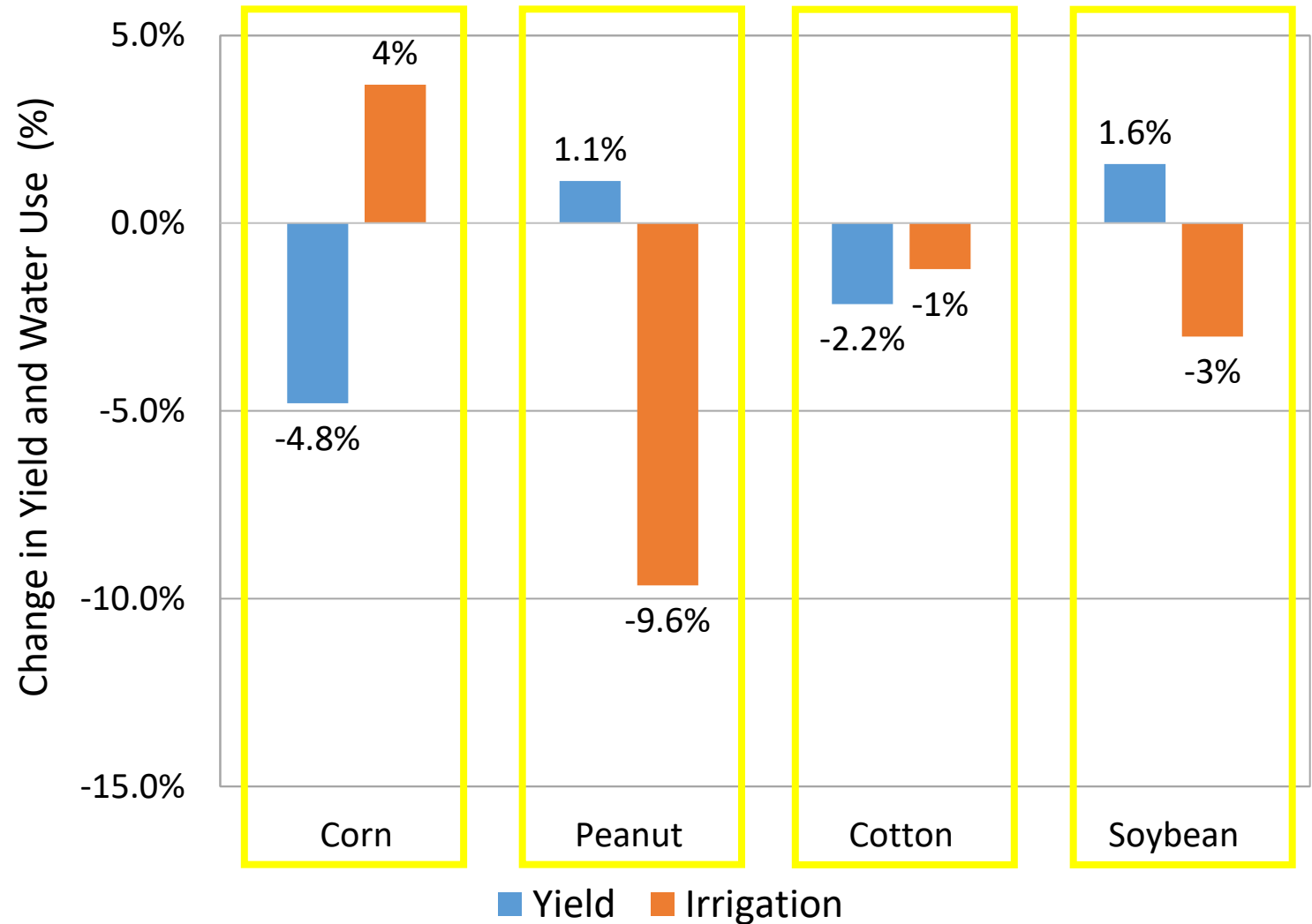
Cotton App Performance Compared to the UGA Extension Checkbook Method

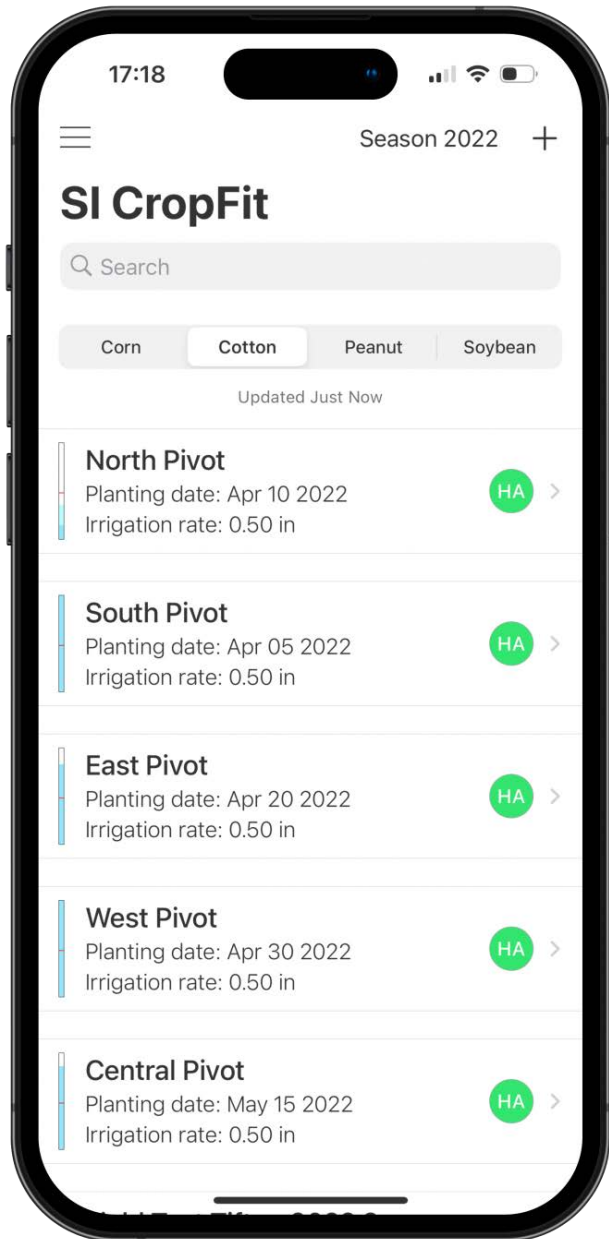
Year	Cotton App Lint Yield (lb/ac)	Yield Difference (%)	Irrigation Water Difference (%)	Season Type
2013	1502	+10%	-75%	Wet
2014	1901	+15%	-40%	Dry
2015	1616	+5%	-17%	Wet
2016	1078	+20%	-34%	Average
2017	1339	+15%	-53%	Average

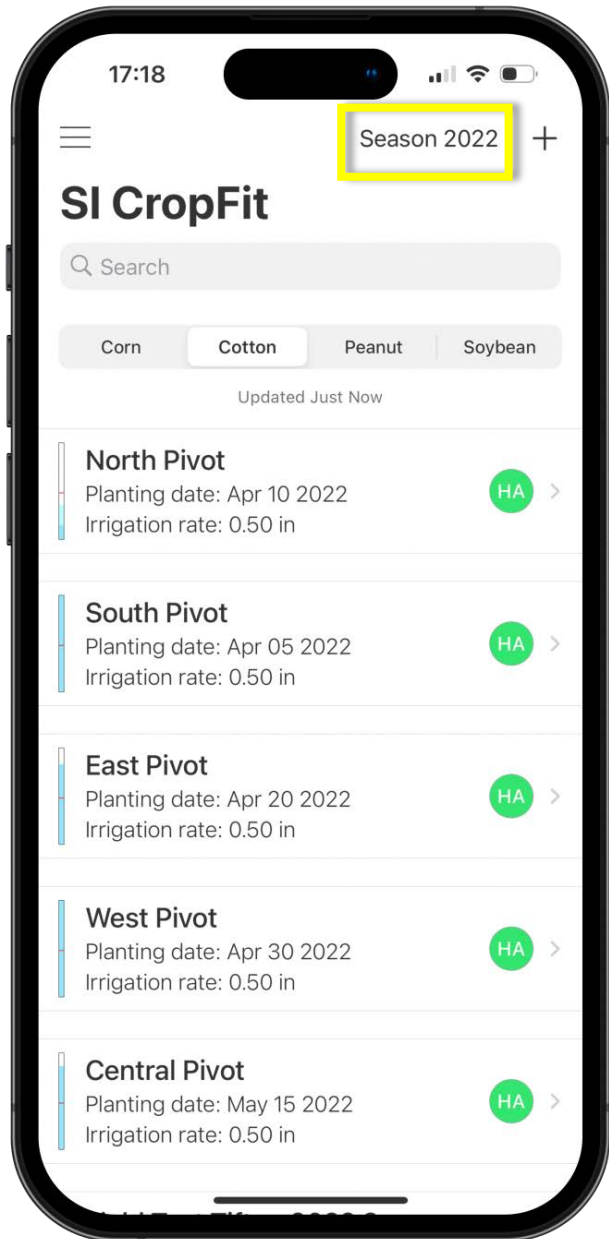
Vellidis, G., V. Liakos, J.H. Andreis, C.D. Perry, W.M. Porter, E.M. Barnes, K.T. Morgan, C. Fraisse, K.W. Migliaccio. 2016. Development and assessment of a smartphone application for irrigation scheduling in cotton. *Computers and Electronics in Agriculture* 127:249–259, doi:10.1016/j.compag.2016.06.021.

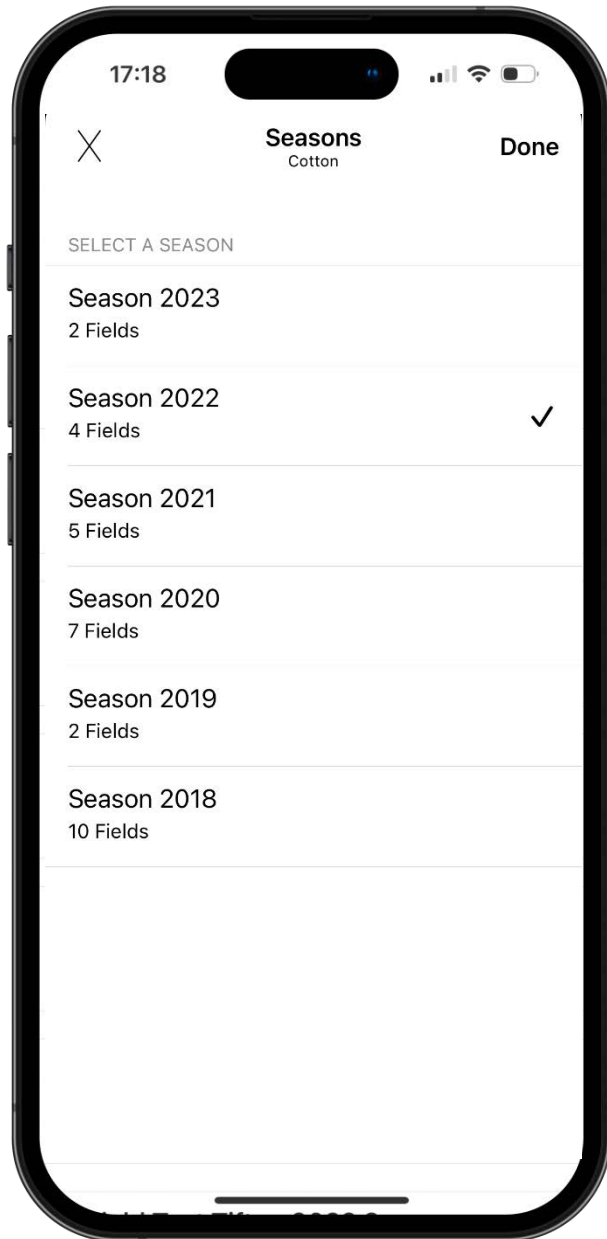
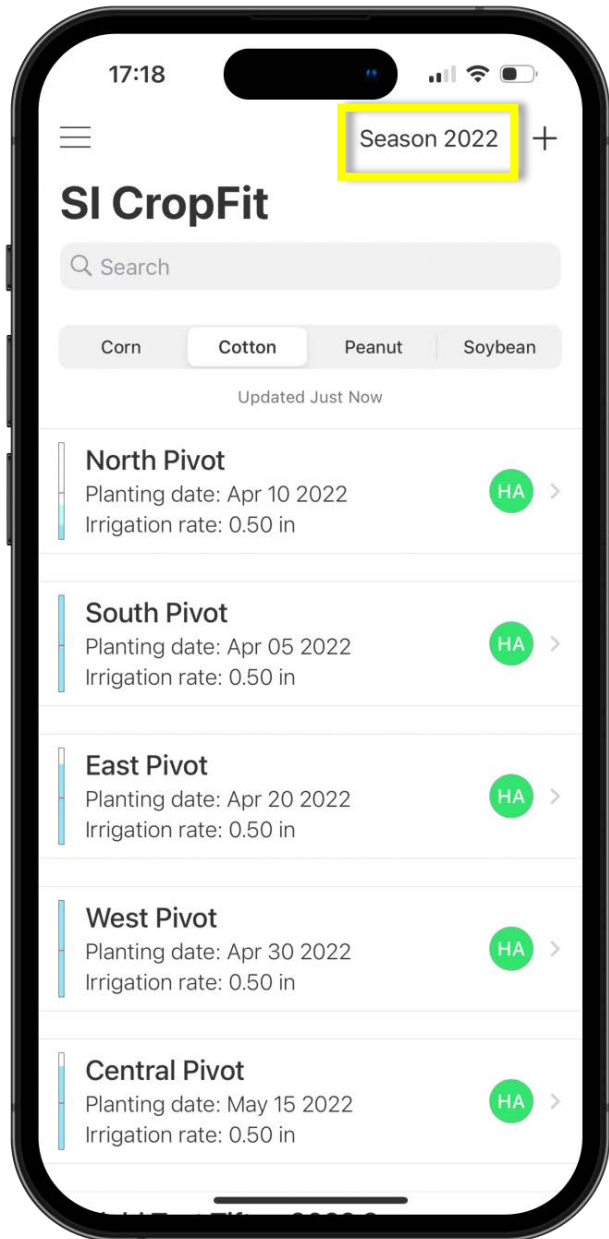
CropFit App vs Soil Moisture Sensors (SMS)

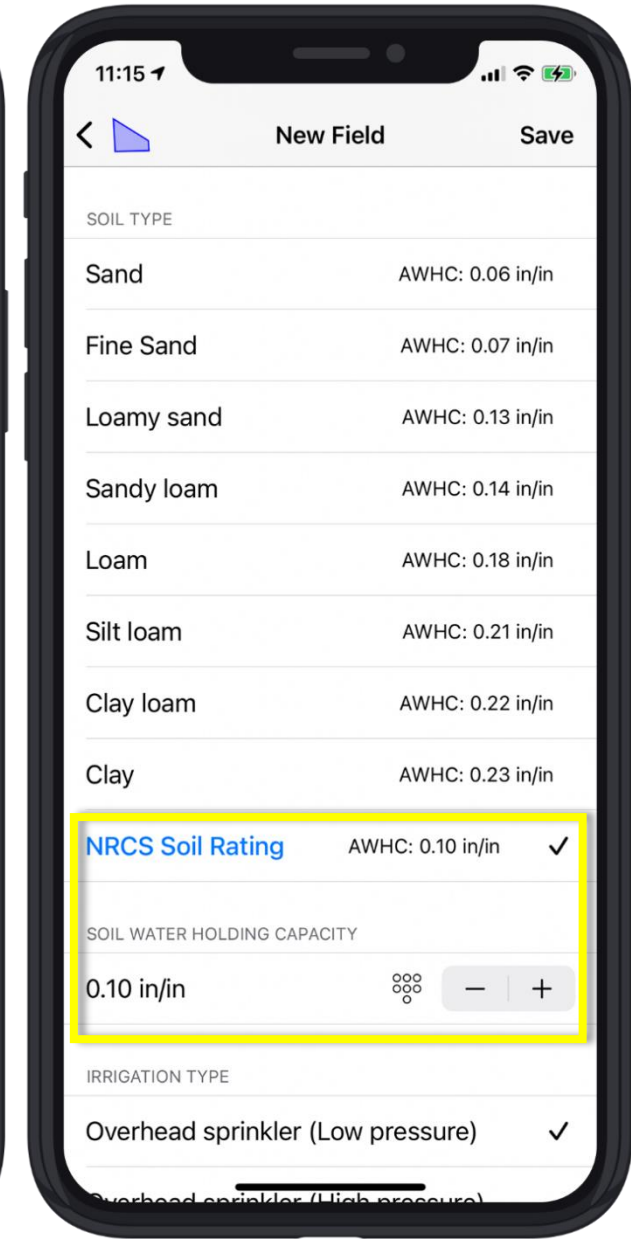
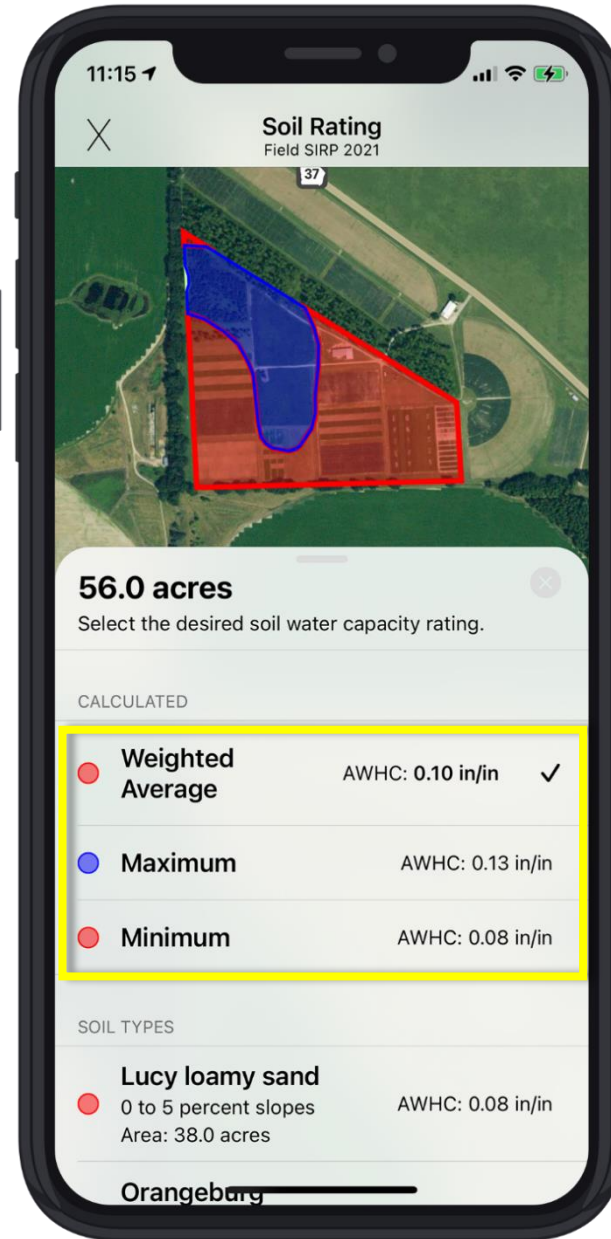
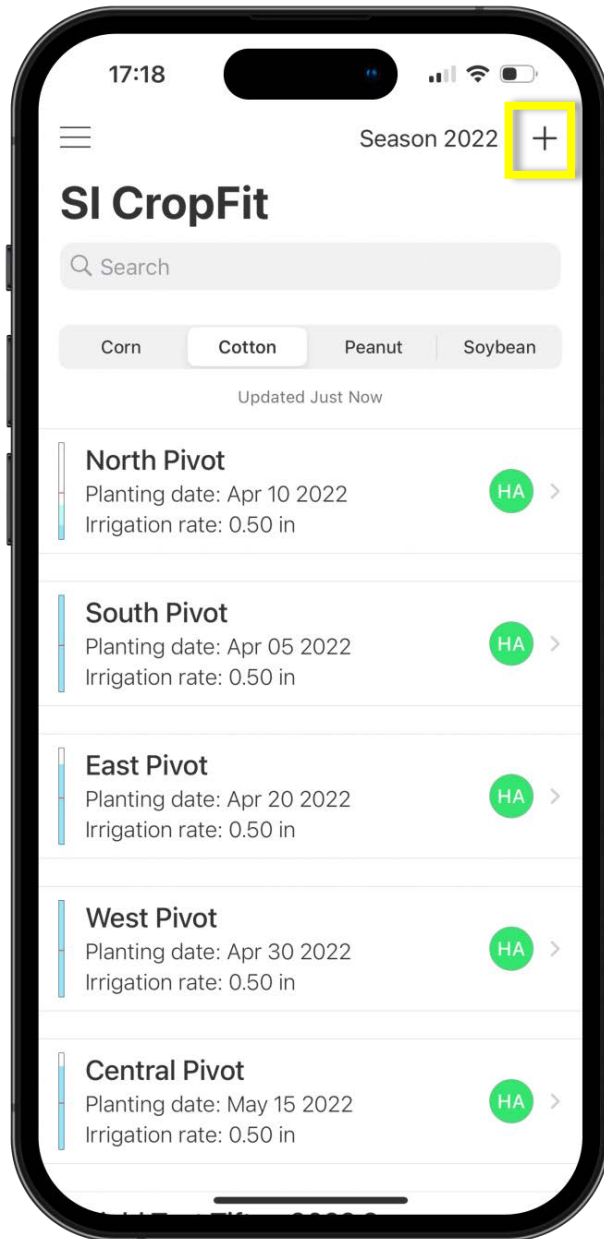
- Compares App to scheduling with SMS in replicated plot studies
- 3-year means
- SMS is baseline
- Example
 - -4.8% yield = App resulted in 4.8% lower yield
 - -9.6% irrigation = App used 9.6% less water

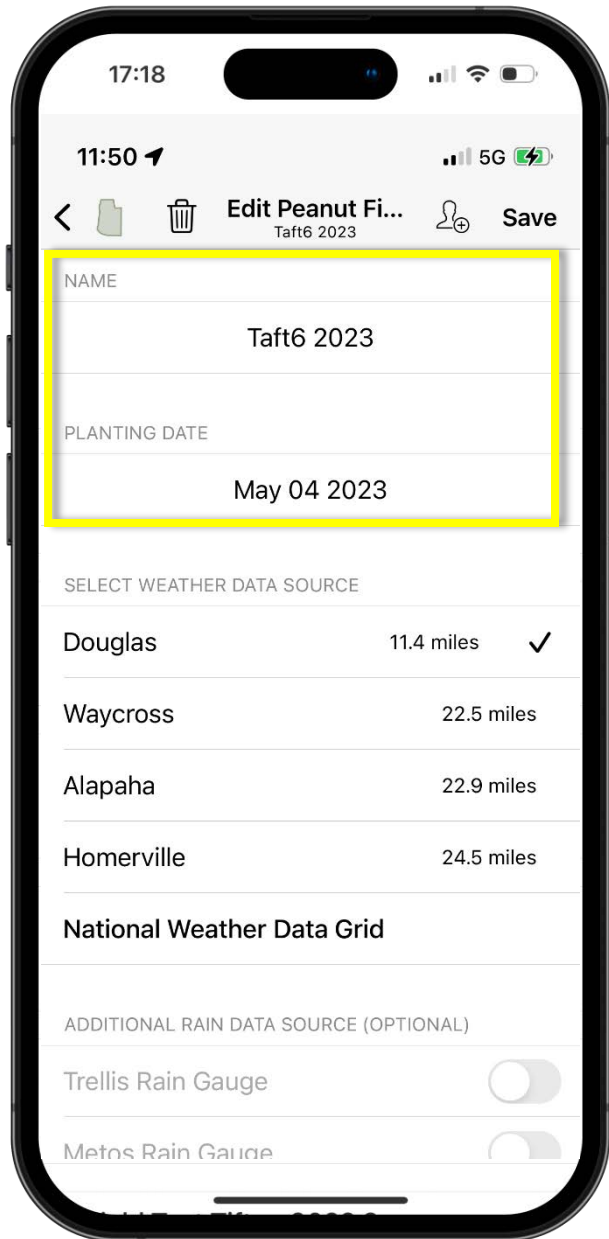


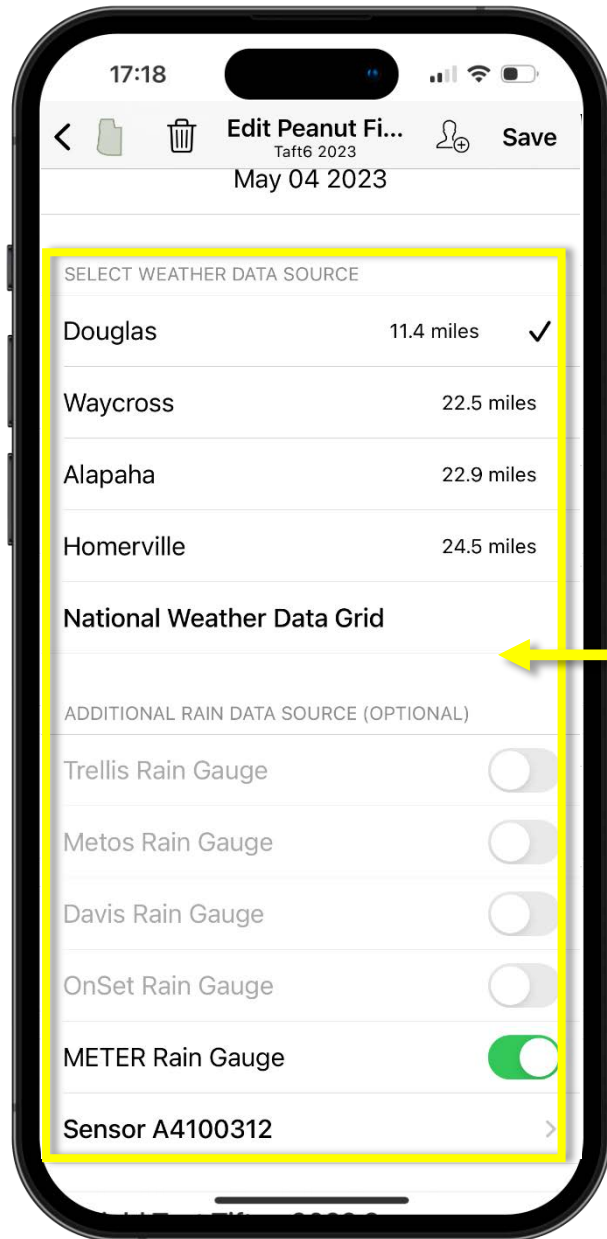
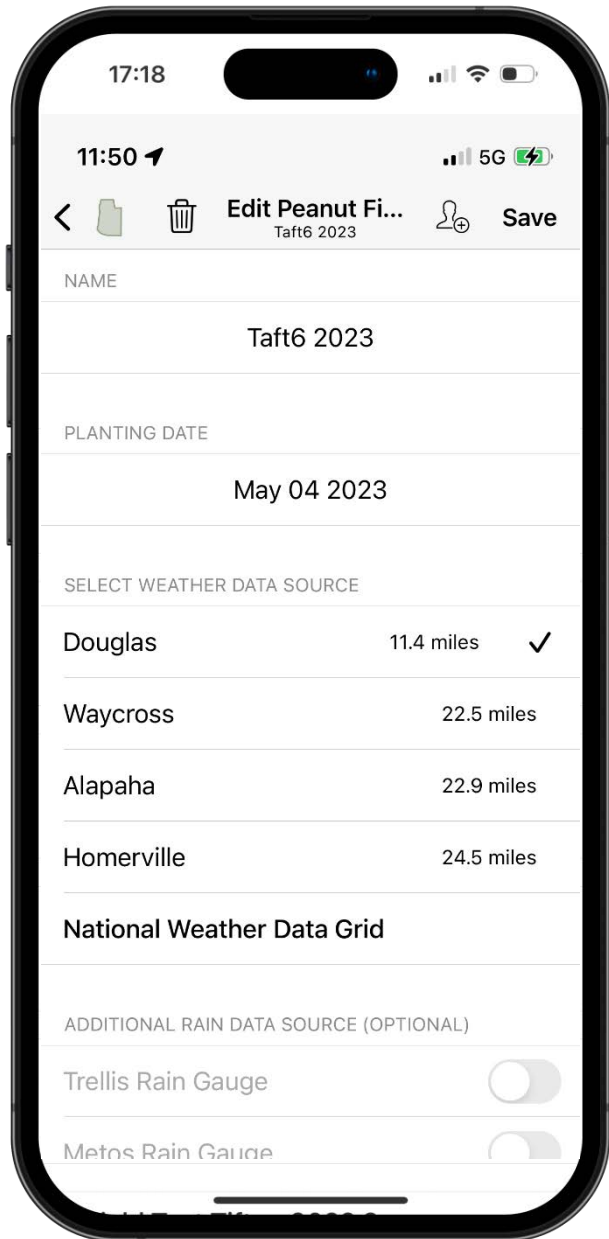












Options for Sources of Meteorological Data

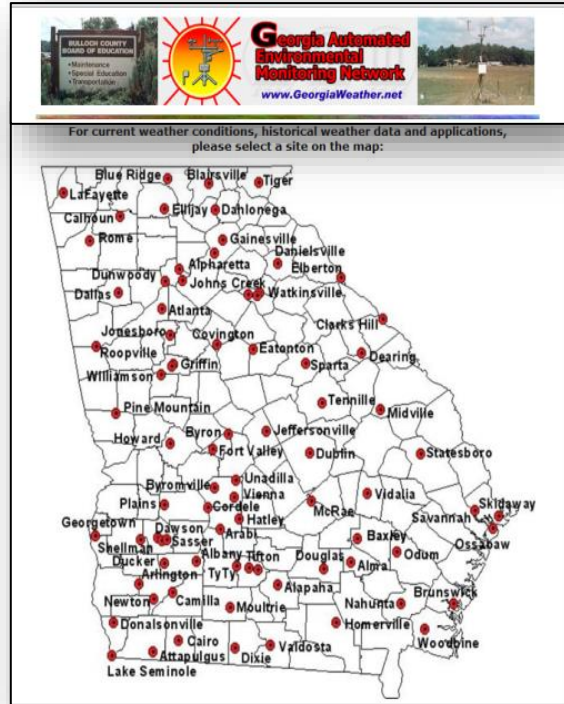


Meteorological Data from Mesonets

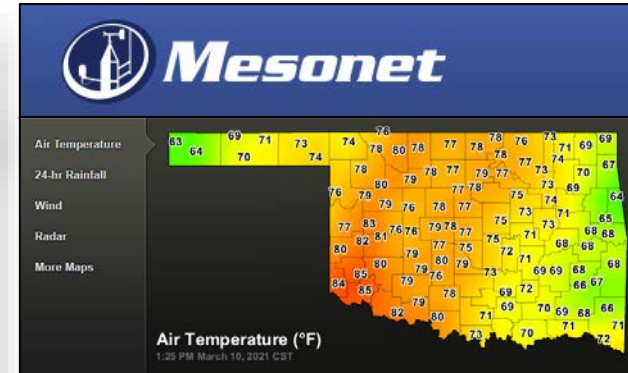
Florida



Georgia



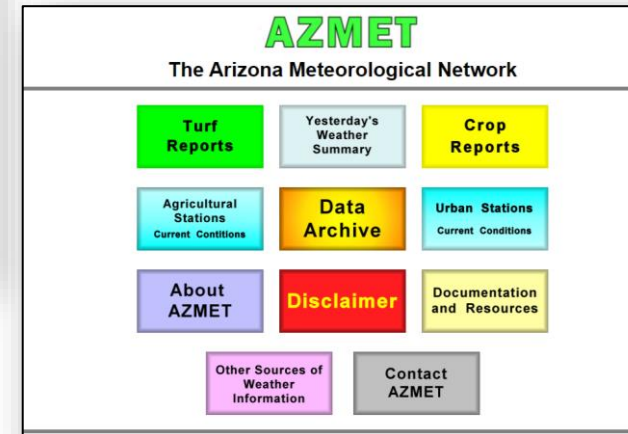
Oklahoma



Mississippi

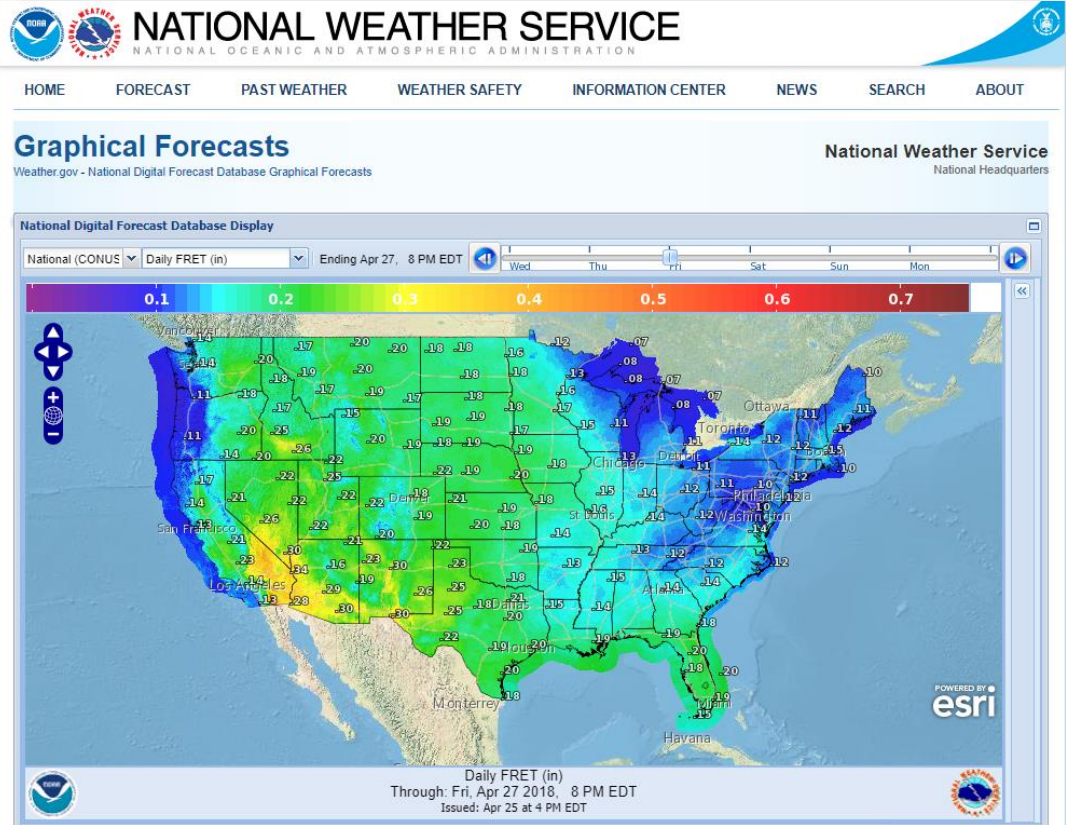


- Precipitation
- Temperature
- Penman-Monteith ETo



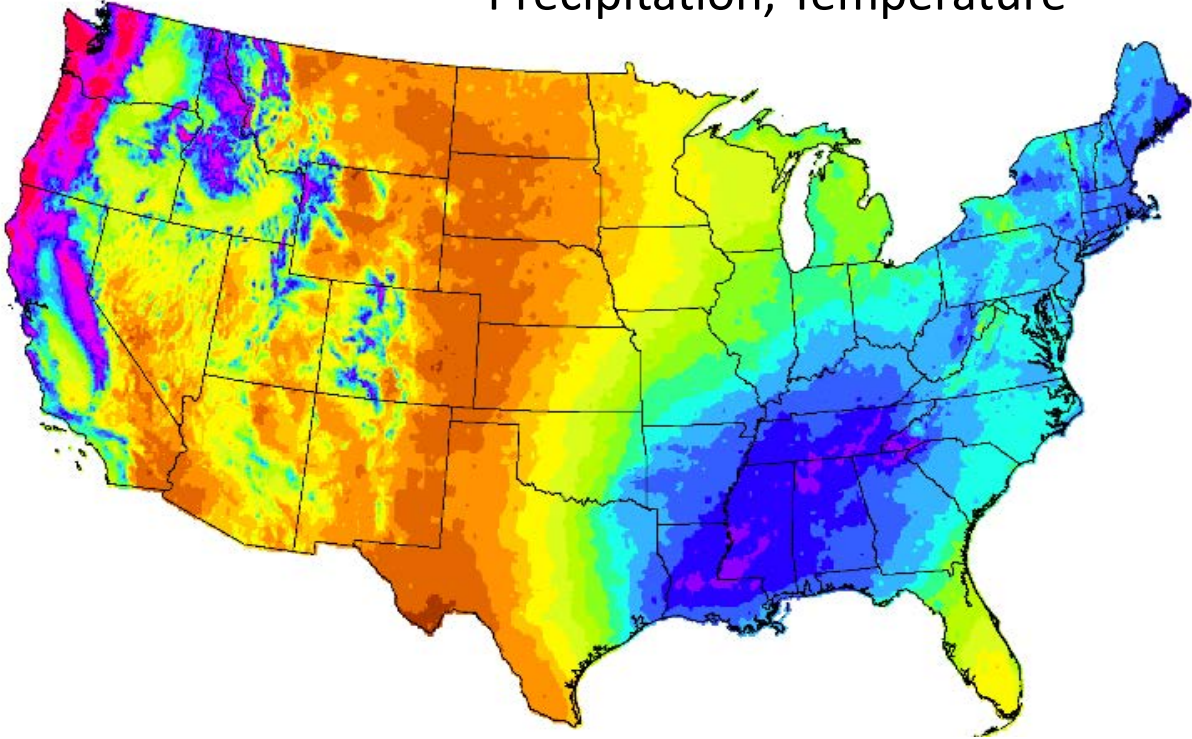
Arizona

Meteorological Data from National Weather Data Grids



Penman ET

Precipitation, Temperature



<https://darksky.net>

Precipitation from Rain Gauges



Trellis



Pessi Metos



Davis

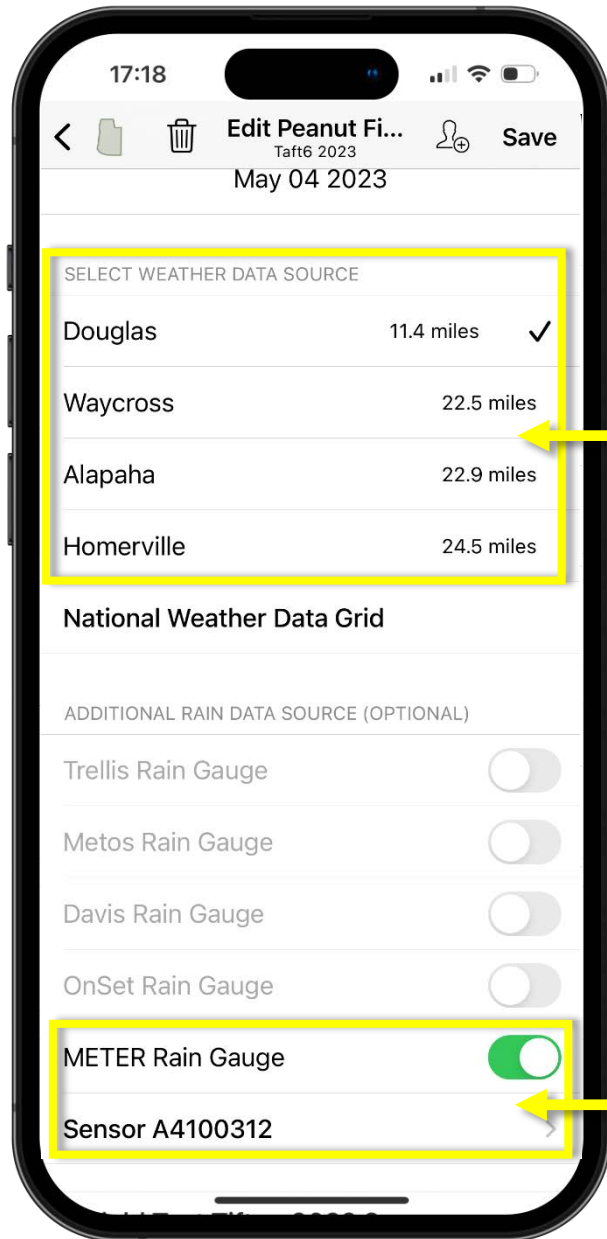
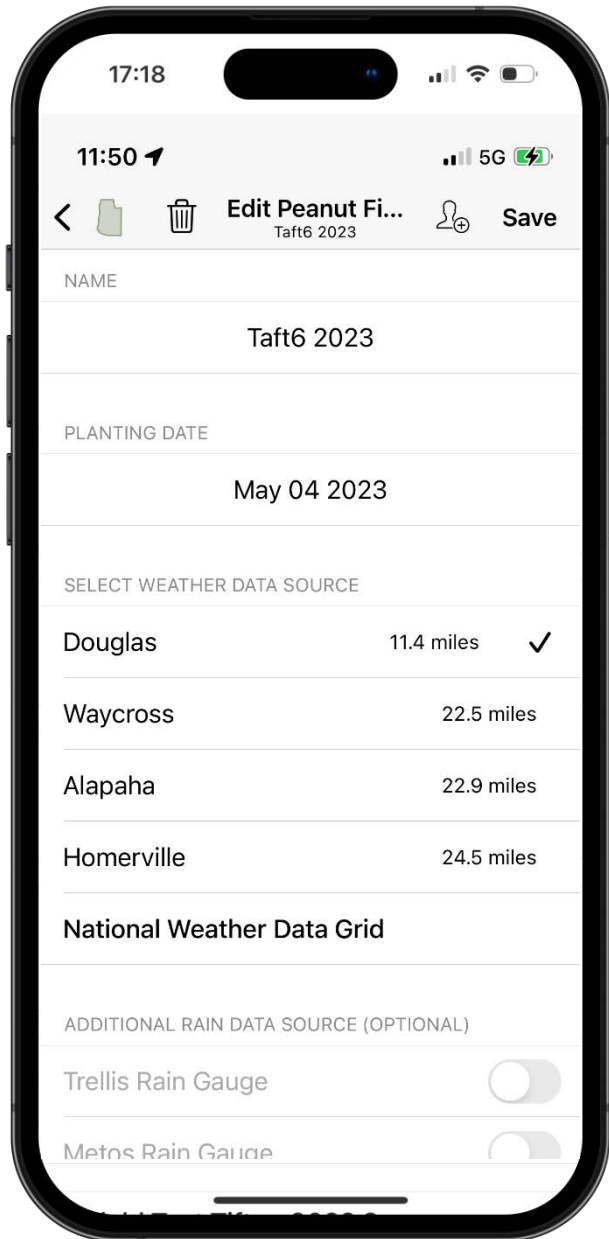


Meter



Onset

Accurate precipitation data are ESSENTIAL for accurate soil water balance calculations

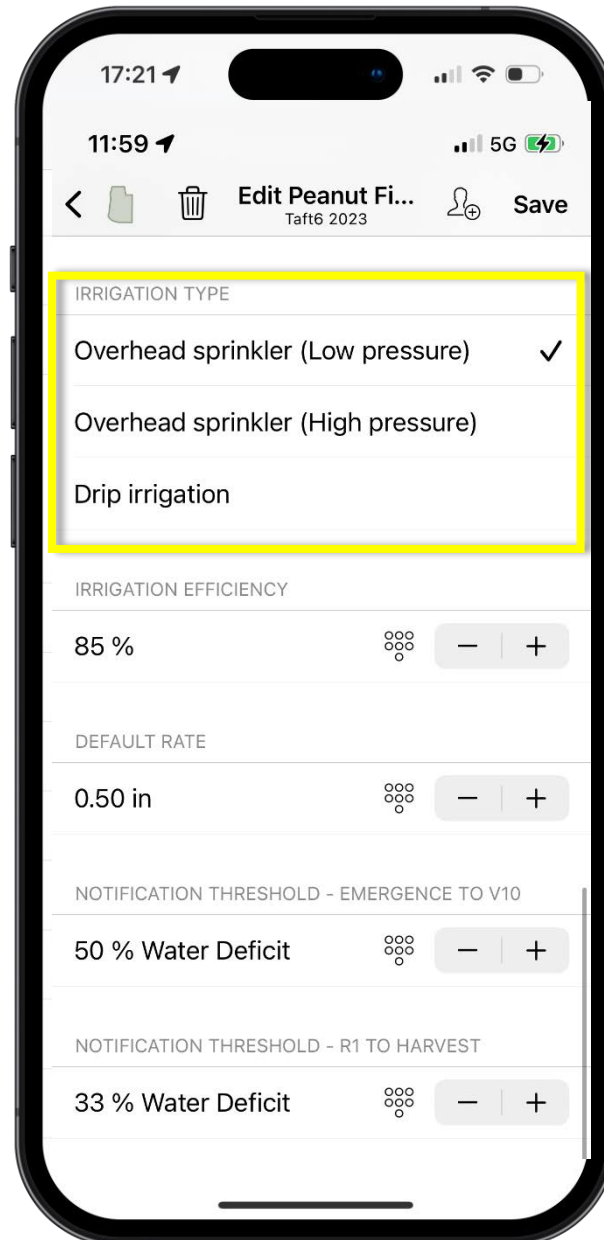
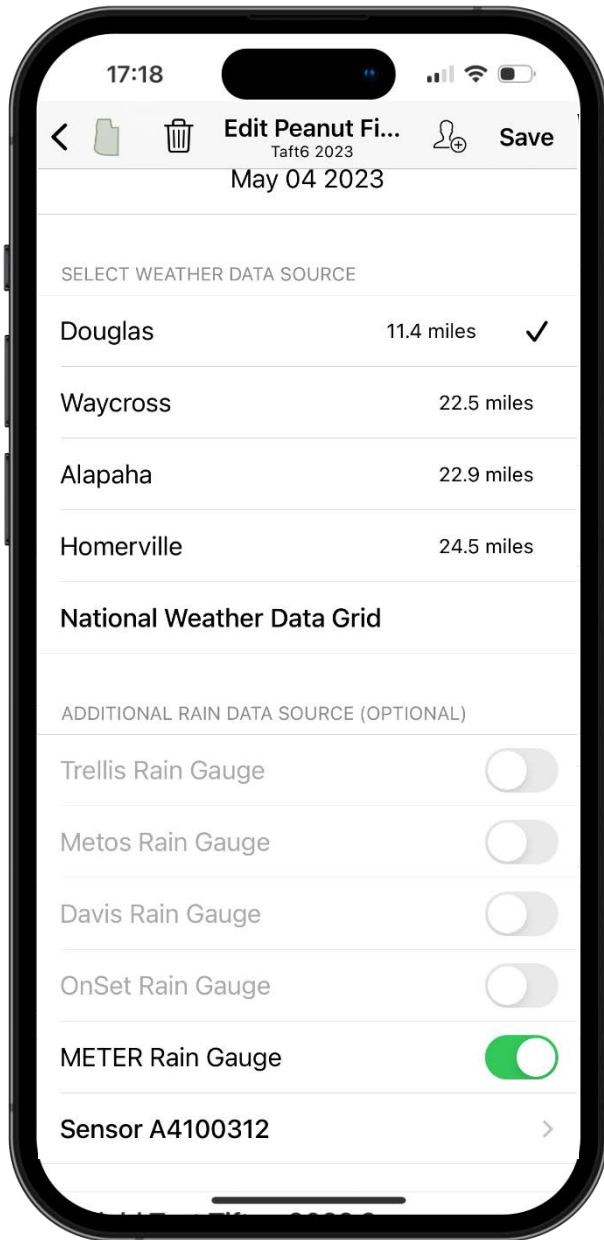
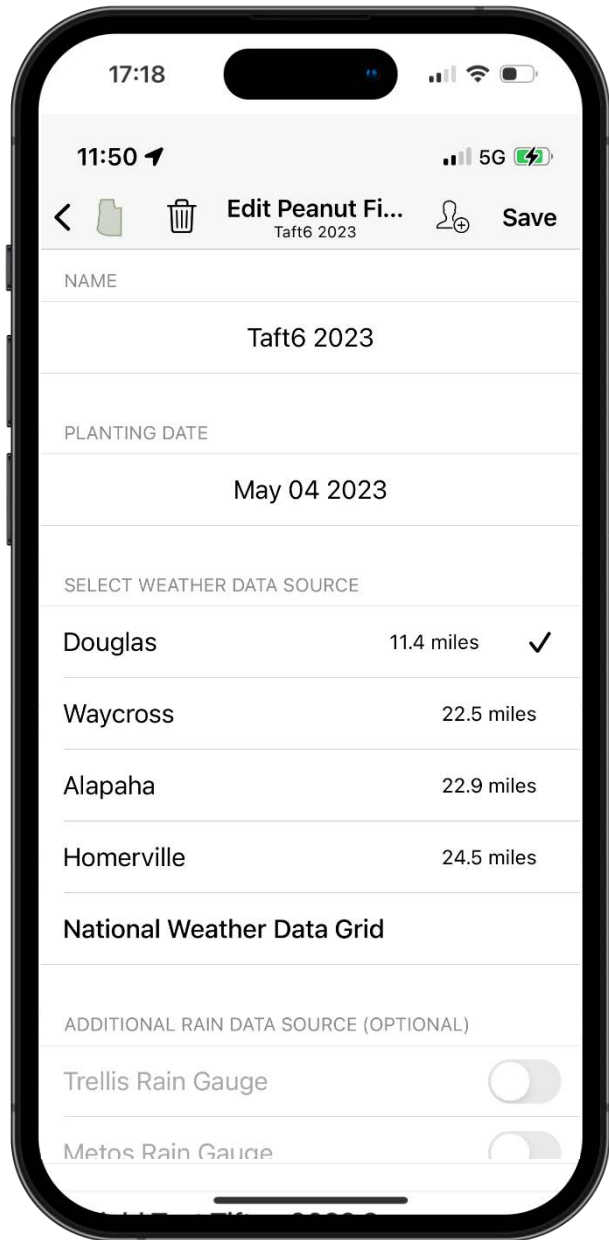


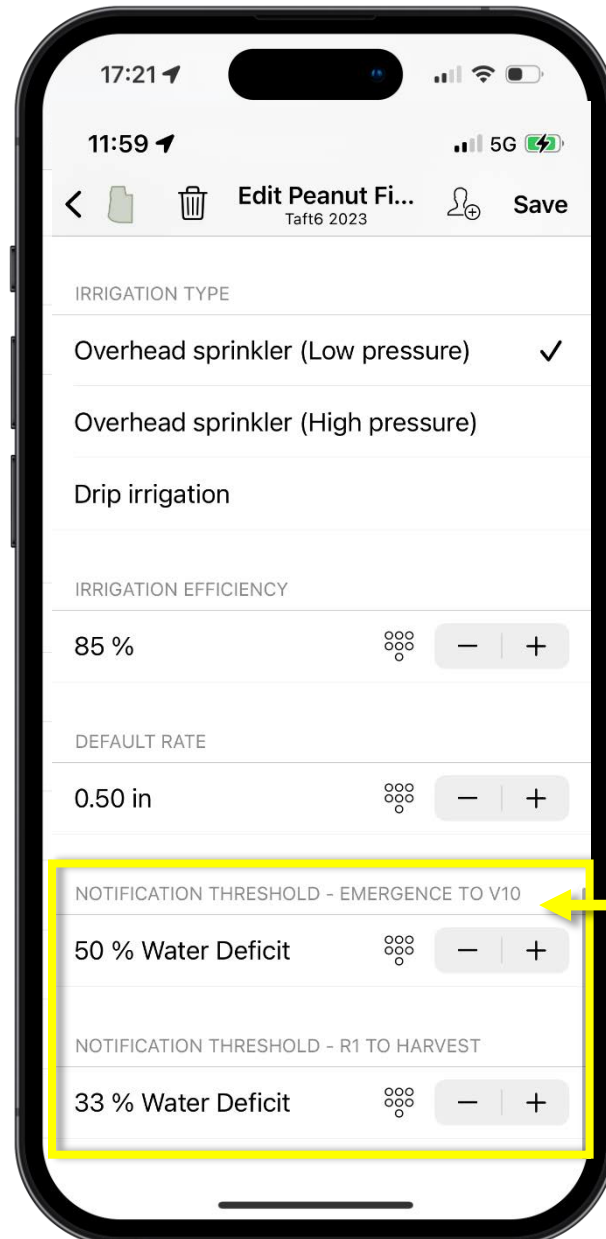
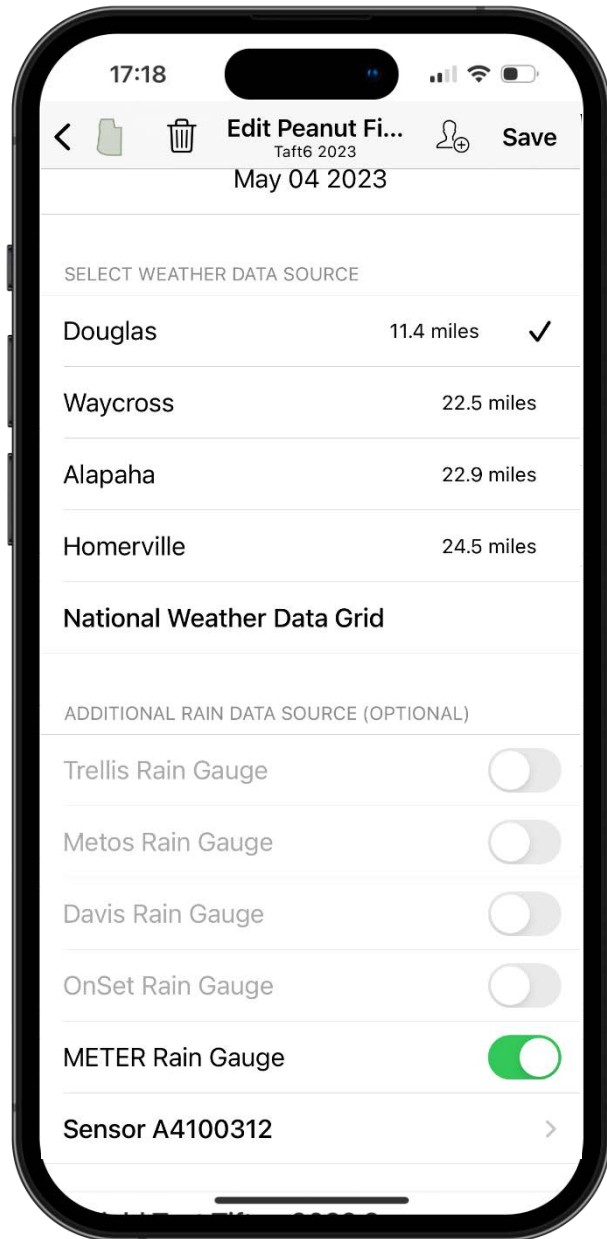
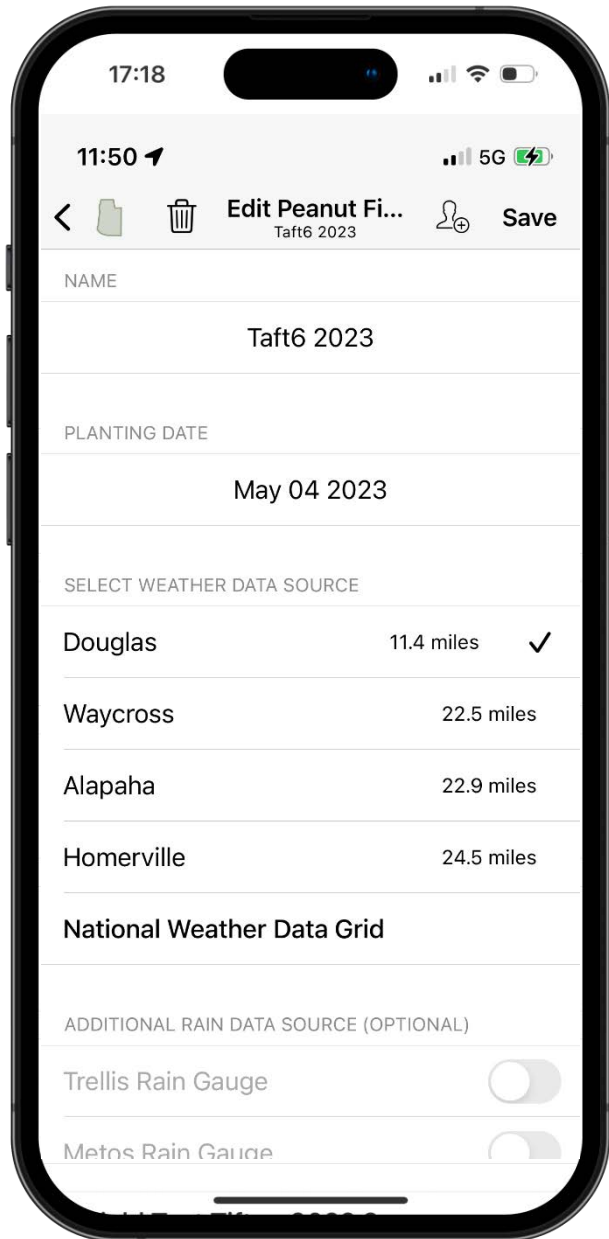
Data for
Calculating ETo



Precipitation
Data

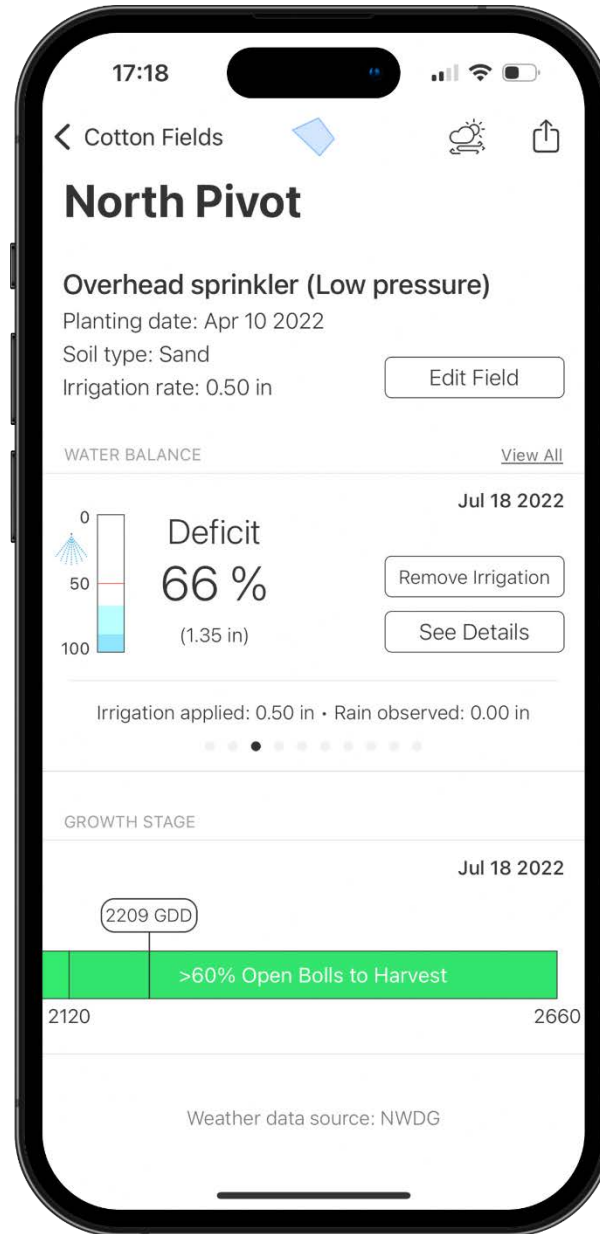
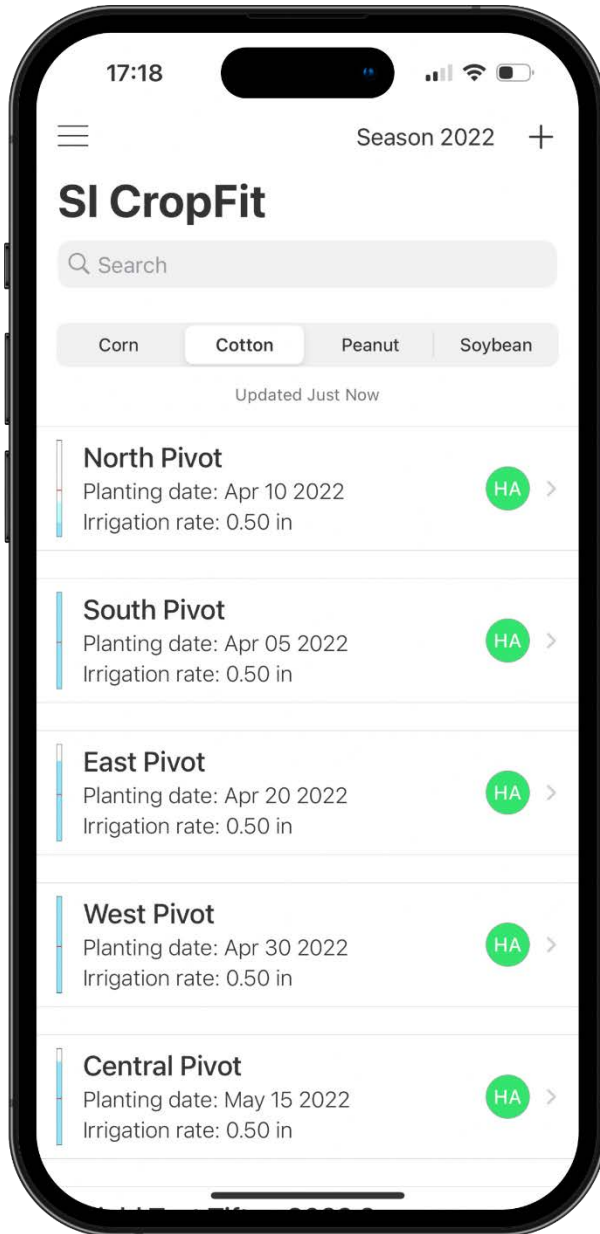


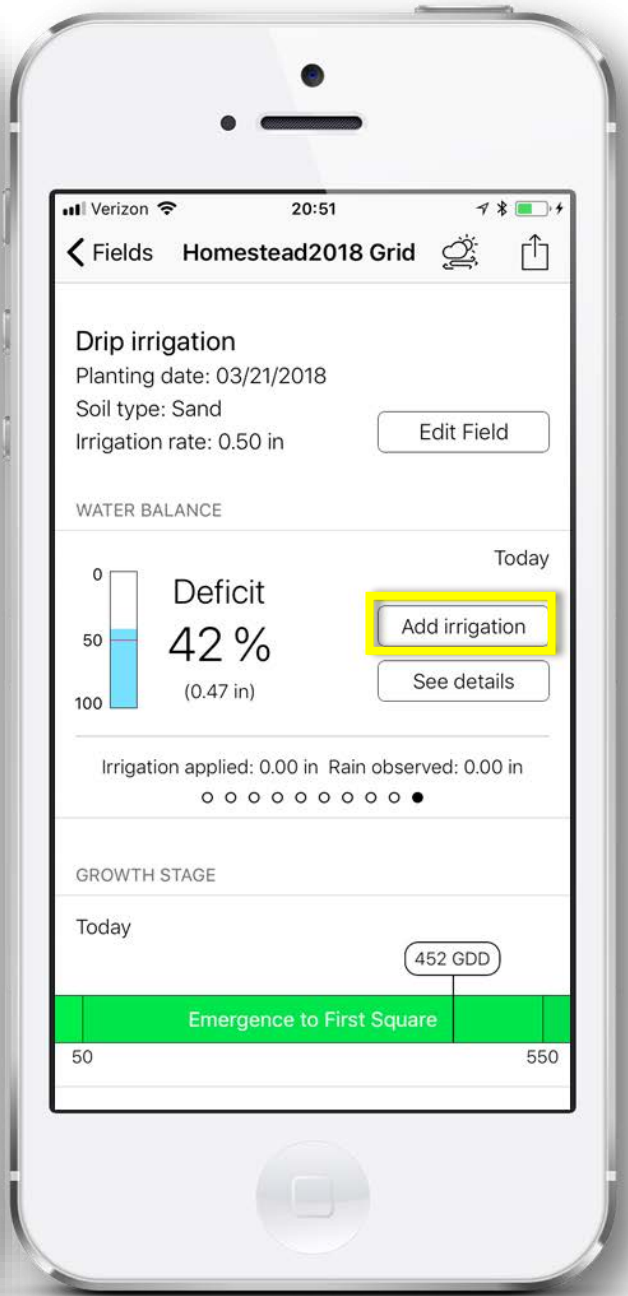
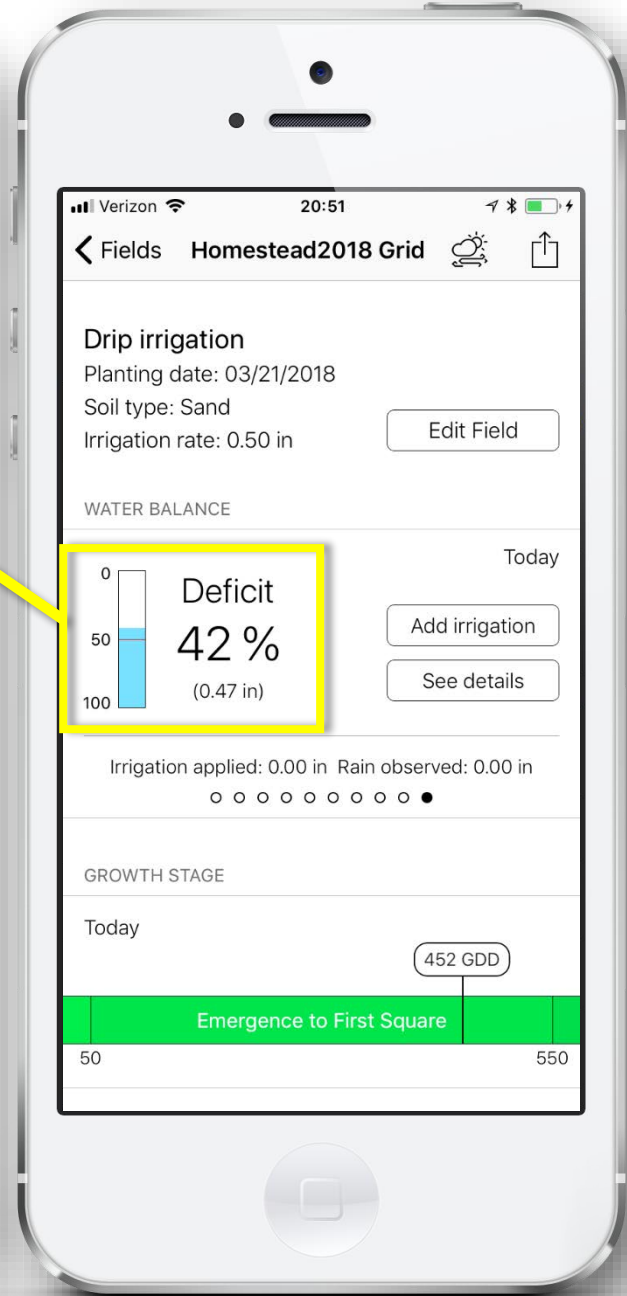
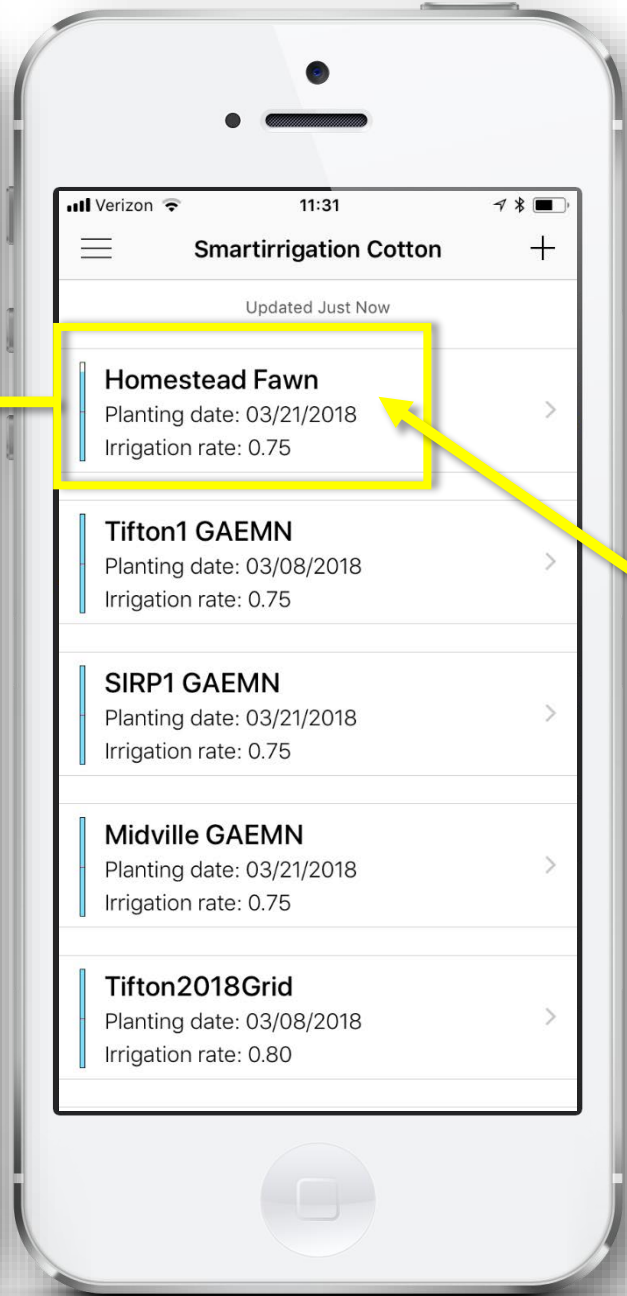
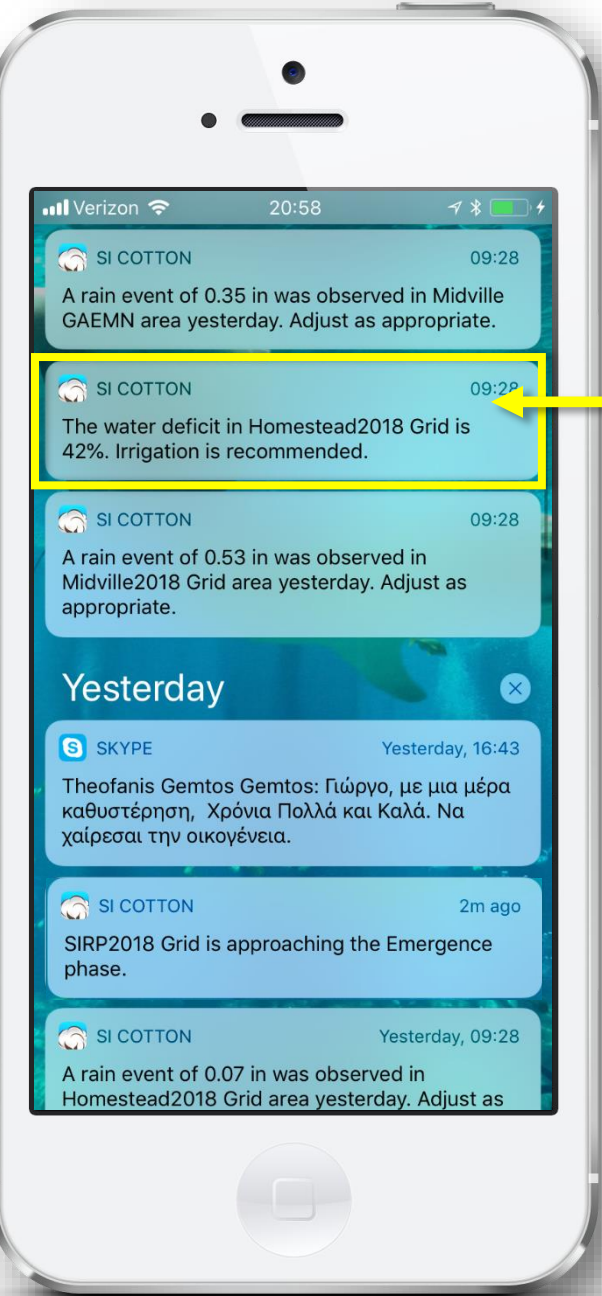


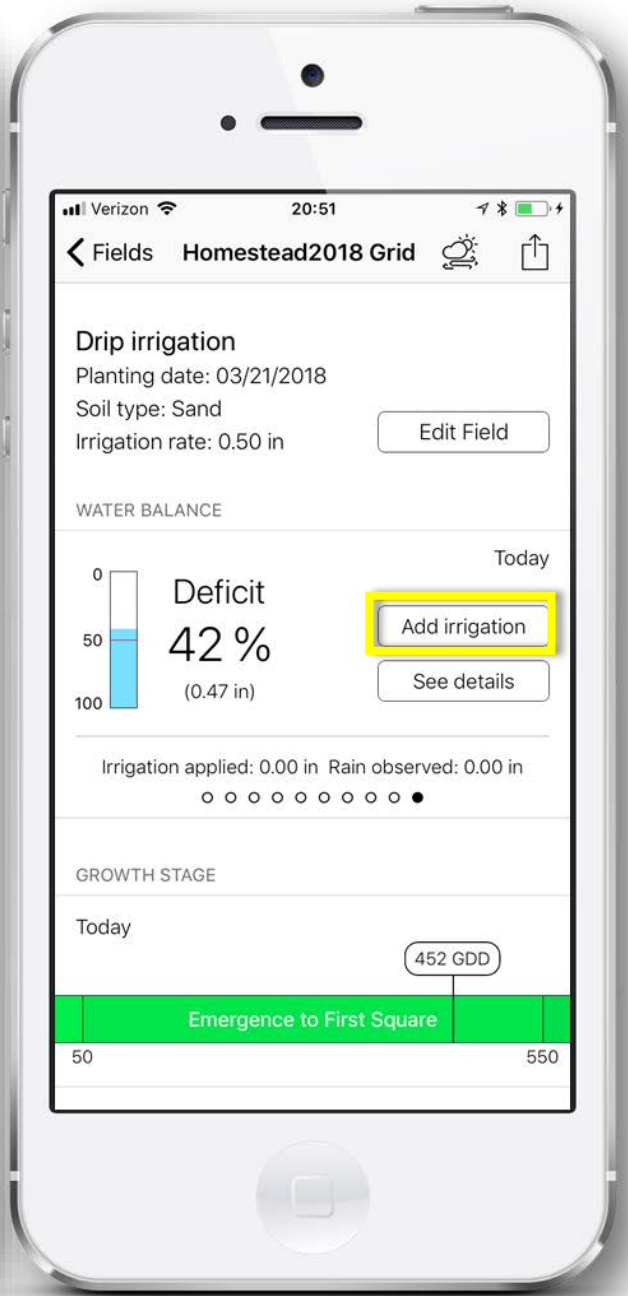
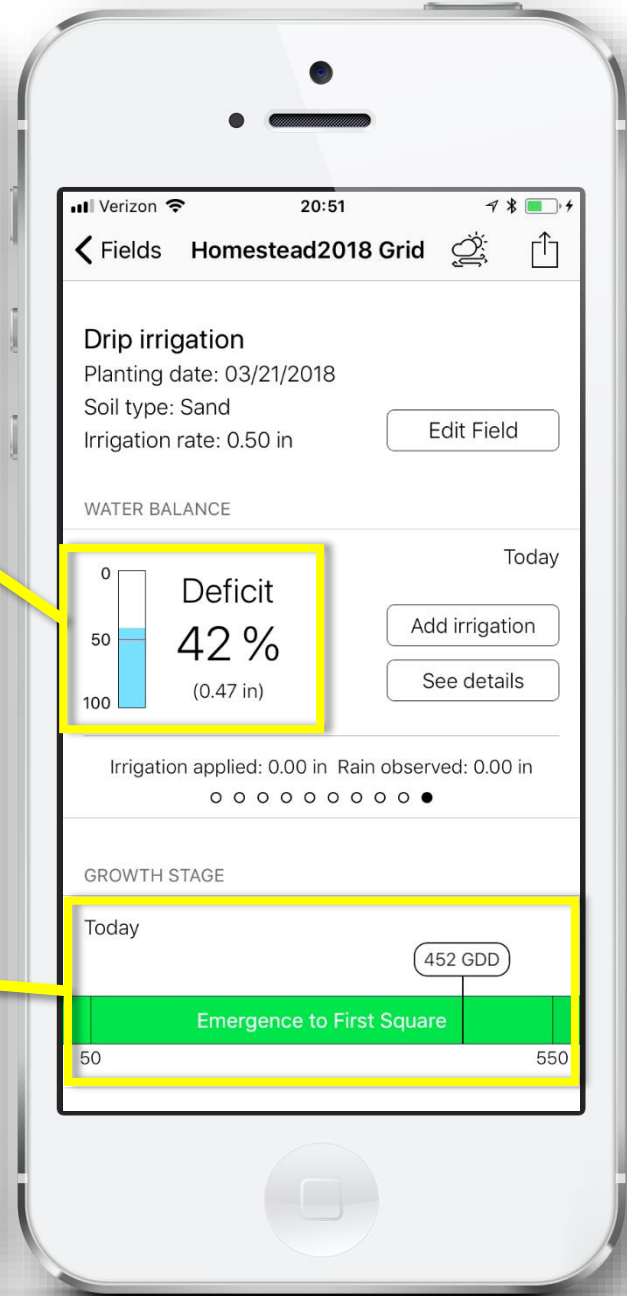
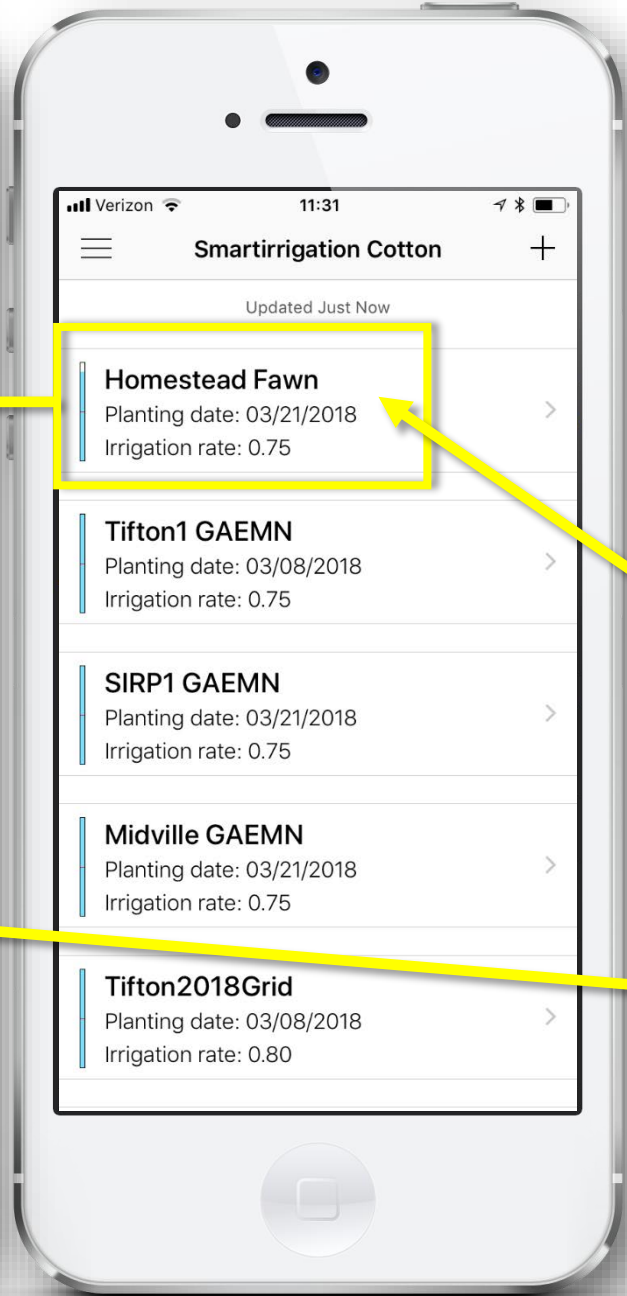
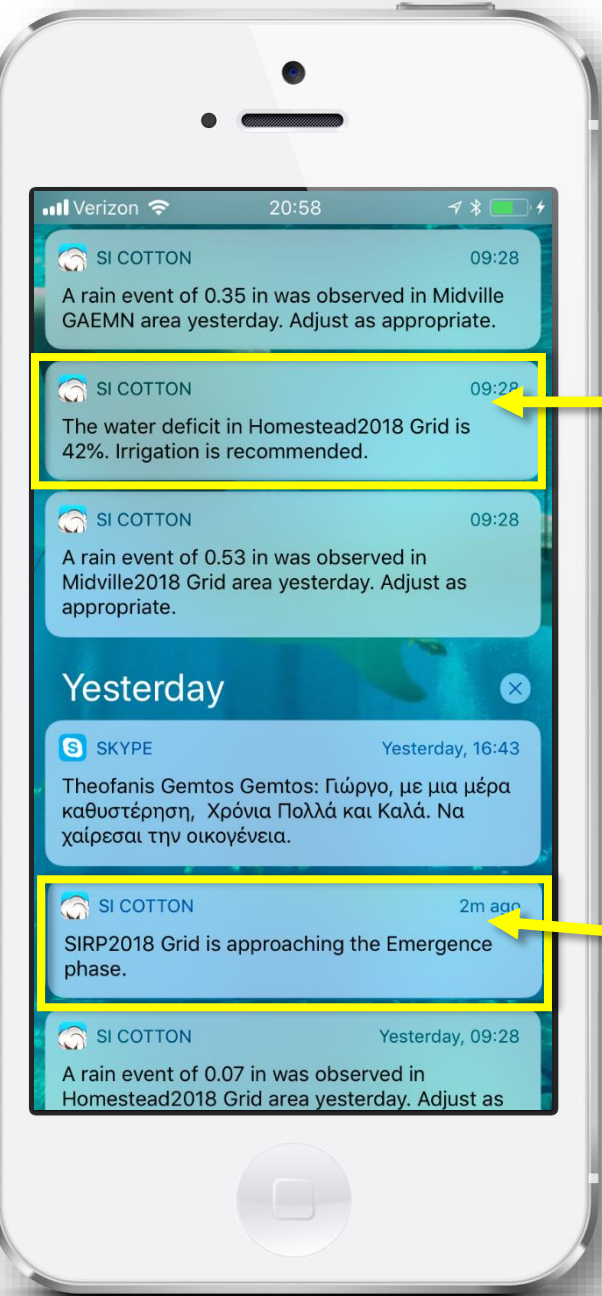


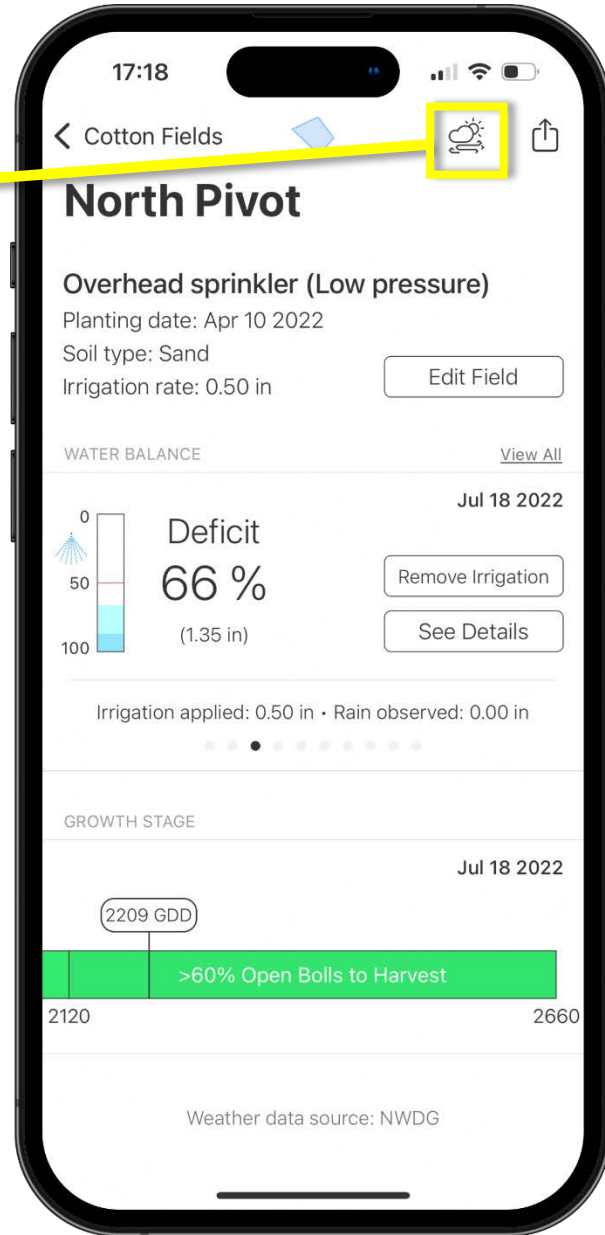
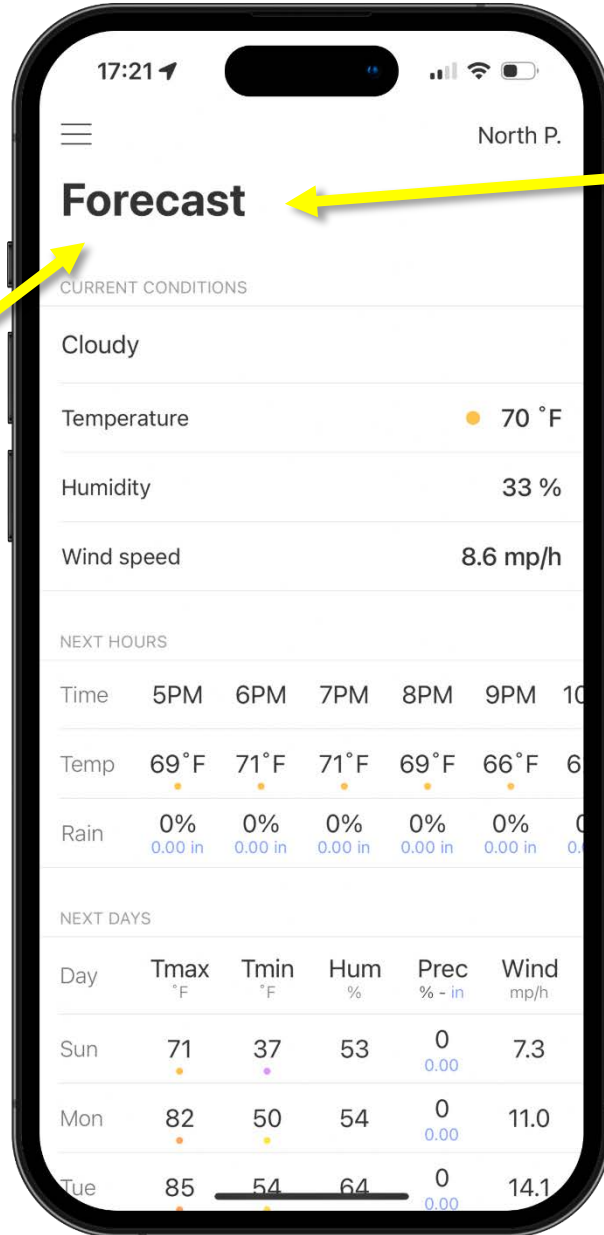
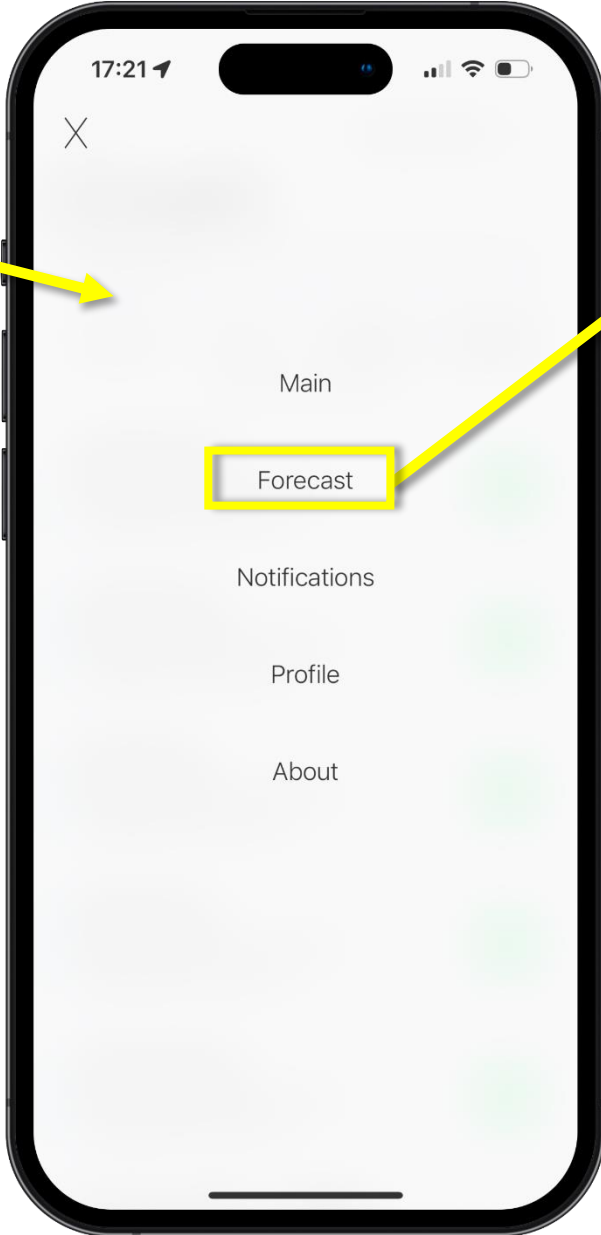
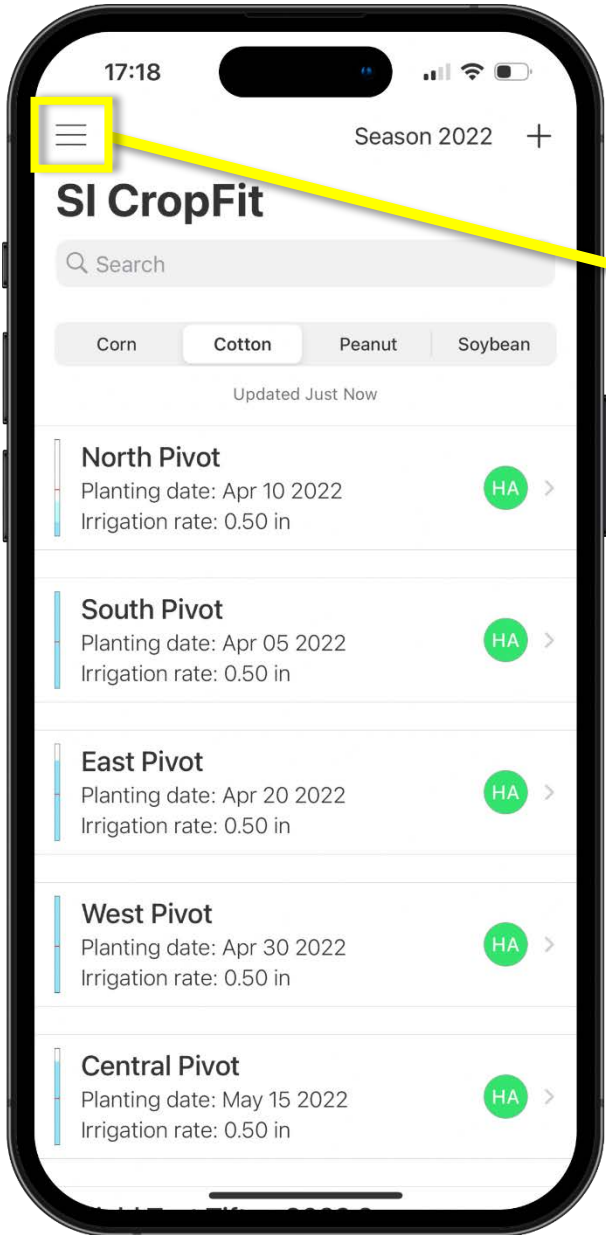
50% Deficit

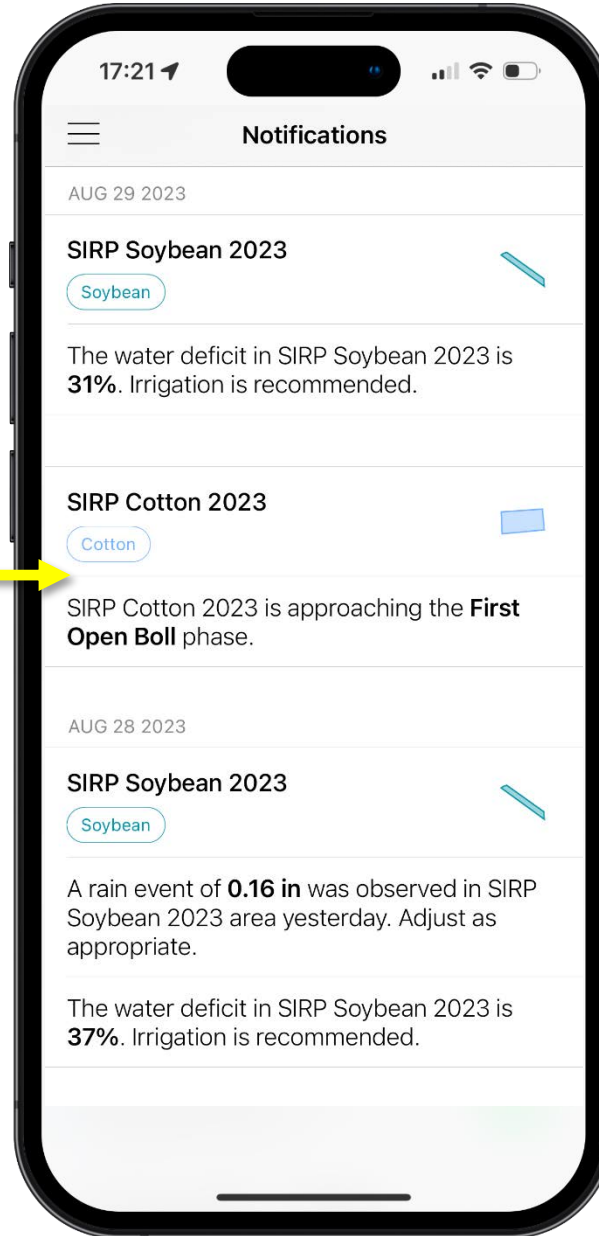
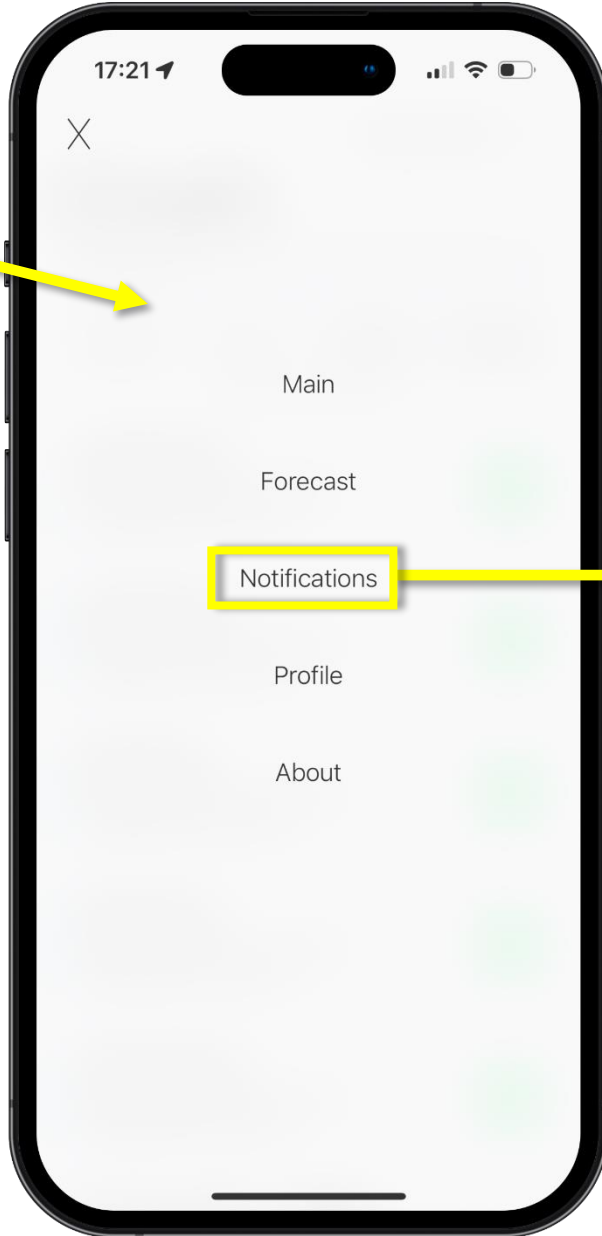
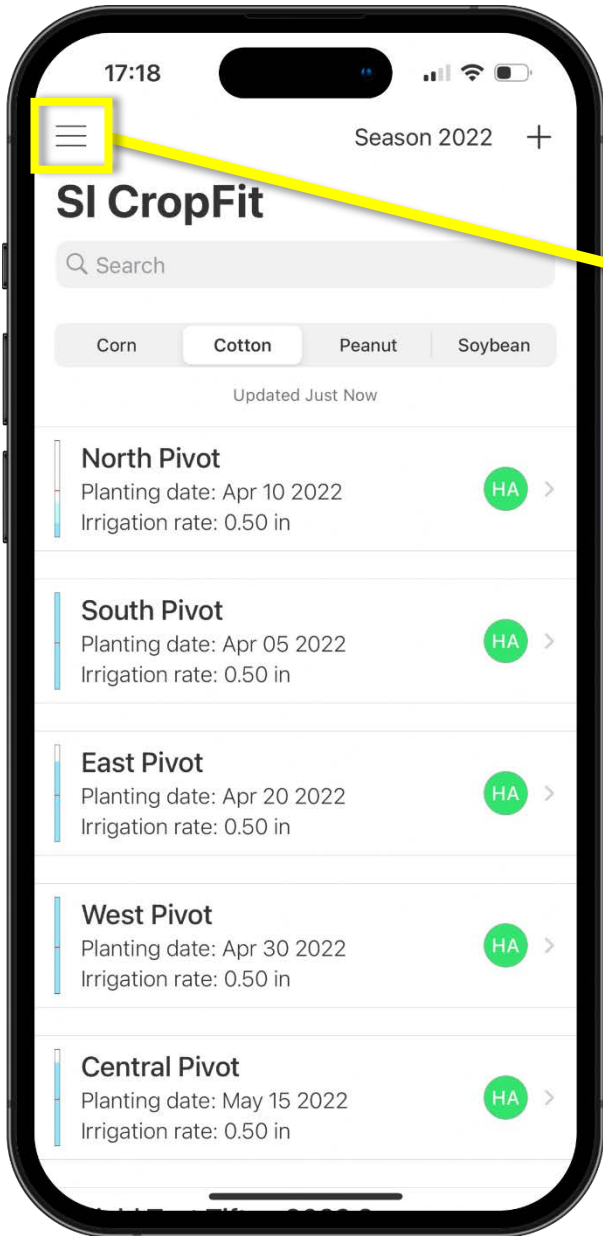
50% of Plant Available
Soil Moisture
(Irrigation Threshold)











Smartirrigation Cotton

User: yiorgos@uga.edu

Field: SIRP Cotton 2023 | Planting date: May-05-2023 | Lat: 31.278666, Lon: -84.296764 | Weather Data Source: AEMN - Camilla

North Pivot

Overhead sprinkler (Low pressure)

Planting date: Apr 10 2022

Soil type: Sand

Irrigation rate: 0.50 in

WATER BALANCE

Deficit **66 %** (1.35 in)

Irrigation applied: 0.50 in · Rain observed: 0.00 in

GROWTH STAGE

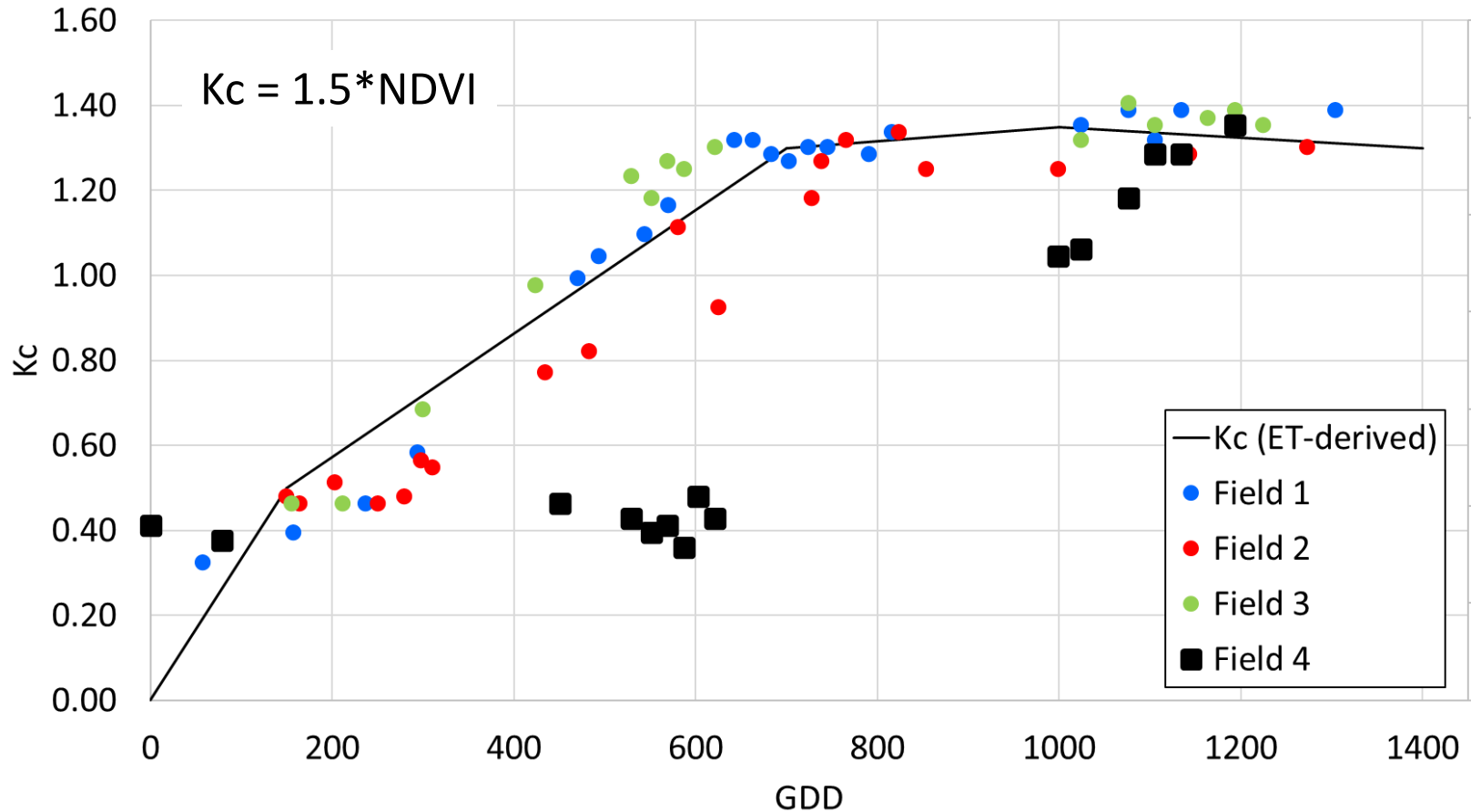
2209 GDD

>60% Open Bolls to Harvest

Weather data source: NWDG

Date	Evapotranspiration (in)	Crop Coeff. (KC)	Crop Evapotranspiration (Et*KC in)	Root Depth (in)	Available Soil Water (in)	Irrigation Applied (in)	Effective Irrigation (in)	Rain (in)	Rain User (in)	Effective Rain (in)	Rain Source	Water Deficit (in)	Water Deficit (%)
Jul-13	0.2095	0.9902	0.20745	25.8	3.9555	-	0	1.1402	-	1.0262	WS 2146	0.8547	22
Jul-14	0.1729	1.0095	0.17454	26.1	4.0014	-	0	0.0402	-	0.0362	WS 2146	0.0031	0
Jul-15	0.1328	1.0311	0.13693	26.4	4.0473	-	0	0.1098	-	0.0988	WS 2146	0.1038	3
Jul-16	0.1895	1.0526	0.19947	26.7	4.0932	-	0	0.5	-	0.45	WS 2146	0.2045	5
Jul-17	0.1482	1.072	0.15887	27	4.1391	-	0	0	-	0	WS 2146	0	0
Jul-18	0.1931	1.0968	0.21179	27.3	4.185	-	0	0	-	0	WS 2146	0.2118	5
Jul-19	0.2036	1.1	0.22396	27.6	4.2309	-	0	0	-	0	WS 2146	0.4358	10
Jul-20	0.197	1.1	0.2167	27.9	4.2768	-	0	0	-	0	WS 2146	0.6525	15
Jul-21	0.2078	1.1	0.22858	28.2	4.3227	-	0	0.45	-	0.405	WS 2146	0.8811	20
Jul-22	0.2118	1.1	0.23298	28.5	4.3686	-	0	0.4799	-	0.4319	WS 2146	0.7091	16
Jul-23	0.1105	1.1	0.12155	28.8	4.4145	-	0	0.0299	-	0.0269	WS 2146	0.3987	9
Jul-24	0.1234	1.1	0.13574	29.1	4.4604	-	0	0.0098	-	0.0088	WS 2146	0.5075	11
Jul-25	0.1831	1.1	0.20141	29.4	4.5063	-	0	0	-	0	WS 2146	0.7001	16
Jul-26	0.2002	1.1	0.22022	29.7	4.5522	-	0	0	-	0	WS 2146	0.9203	20
Jul-27	0.2176	1.1	0.23936	30	4.5441	-	0	0	-	0	WS 2146	1.1597	26
Jul-28	0.211	1.1	0.2321	30	4.59	-	0	0	-	0	WS 2146	1.3918	30
Jul-29	0.1552	1.1	0.17072	30	4.59	-	0	0	-	0	WS 2146	1.5625	34
Jul-30	0.1067	1.1	0.11737	30	4.59	-	0	0	-	0	WS 2146	1.6799	37
Jul-31	0.17	1.1	0.187	30	4.59	0.75	0.64	0	-	0	WS 2146	1.8669	41
Aug-01	0.2003	1.1	0.22033	30	4.59	-	0	0	-	0	WS 2146	1.4497	32
Aug-02	0.218	1.1	0.2398	30	4.59	-	0	0	-	0	WS 2146	1.6895	37
Aug-03	0.1987	1.1	0.21857	30	4.59	-	0	0	-	0	WS 2146	1.9081	42
Aug-04	0.1966	1.1	0.21626	30	4.59	0.75	0.64	0	-	0	WS 2146	2.1244	46
Aug-05	0.1732	1.1	0.19052	30	4.59	0	0	0	-	0	WS 2146	1.6774	37
Aug-06	0.2083	1.1	0.22913	30	4.59	-	0	0.55	-	0.495	WS 2146	1.9065	42
Aug-07	0.1935	1.1	0.21285	30	4.59	0.75	0.64	0	-	0	WS 2146	1.6244	35
Aug-08	0.2136	1.1	0.23496	30	4.59	-	0	0	-	0	WS 2146	1.2219	27
Aug-09	0.1743	1.1	0.19173	30	4.59	-	0	0	-	0	WS 2146	1.4136	31
Aug-10	0.1886	1.1	0.20746	30	4.59	-	0	0	-	0	WS 2146	1.6211	35
Aug-11	0.2236	1.1	0.24596	30	4.59	0.75	0.64	0.0098	-	0.0088	WS 2146	1.8671	41
Aug-12	0.1638	1.1	0.18018	30	4.59	-	0	0.2902	-	0.2612	WS 2146	1.401	31
Aug-13	0.207	1.1	0.2277	30	4.59	-	0	0	-	0	WS 2146	1.3675	30
Aug-14-2023	0.2214	1.1	0.24354	30	4.59	-	0	0.25	-	0.225	WS 2146	1.611	35
Aug-15-2023	99	1811	0.1926	30	4.59	-	0	0	-	0	WS 2146	1.5949	35
Aug-16-2023	100	1832	0.1915	30	4.59	-	0	0.35	-	0.315	WS 2146	1.7971	39

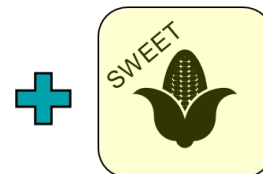
New Functionalities



Emily Bedwell



Vinicius Trevisan



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iOS and Android Apps.

Austn is specialized in Mobile Apps Development. With a focus on research extension projects, we believe technology is the hinge for a larger reach, better results and improved sustainability.

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Thank you!

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