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APPENDICES

Table A1 Irrigation calendar output as recommended by SWB scheduler, using potato crop for Melkassa climate and soil conditions

IRRIGATION CALENDAR

Farmer: _____ Crop: Potato (Awash)
Field: Melkassa Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
6 Jan 2006		68			
13 Jan 2006	42	33	23		
20 Jan 2006	42	33	23		
27 Jan 2006	42	33	23		
3 Feb 2006	49	38	26		
10 Feb 2006	61	47	32		
17 Feb 2006	75	58	40		
24 Feb 2006	87	67	46		
3 Mar 2006	88	68	47		
10 Mar 2006	84	65	45		
17 Mar 2006	84	65	45		
24 Mar 2006	84	65	45		
31 Mar 2006	87	67	46		
7 Apr 2006	87	67	46		
14 Apr 2006	87	67	46		
21 Apr 2006	84	65	45		
28 Apr 2006	87	67	46		
5 May 2006	87	67	46		
12 May 2006	71	55	38		
19 May 2006	54	42	29		
26 May 2006	48	37	25		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A2 Irrigation calendar output as recommended by SWB scheduler, using onion crop for Melkassa climate and soil conditions

IRRIGATION CALENDAR

Farmer:
Field: Melkassa
Soil type: Sandy clay loam
Irrigation system: Furrow
Management options: Fixed, every seven days
Irrigation frequency option: Interval (Days)

Crop: Onion (Texas Grano)
Planting date: 01/01/2006
Wetting Front Detectors:
 Shallow: 4
 Deep: 4
Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
6 Jan 2006		70			
13 Jan 2006	48	37	25		
20 Jan 2006	48	37	25		
27 Jan 2006	49	38	26		
3 Feb 2006	51	40	28		
10 Feb 2006	58	45	31		
17 Feb 2006	64	50	35		
24 Feb 2006	75	58	40		
3 Mar 2006	81	63	44		
10 Mar 2006	81	63	44		
17 Mar 2006	81	63	44		
24 Mar 2006	84	65	45		
31 Mar 2006	84	65	45		
7 Apr 2006	84	65	45		
14 Apr 2006	84	65	45		
21 Apr 2006	84	65	45		
28 Apr 2006	81	63	44		
5 May 2006	81	63	44		
12 May 2006	81	63	44		
19 May 2006	81	63	44		
26 May 2006	81	63	44		
29 May 2006	35	27	18		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A3 Irrigation calendar output as recommended by SWB scheduler, using potato crop for Bako climate and soil conditions

IRRIGATION CALENDAR

Farmer: Crop: Potato (Awash)
Field: Bako Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
7 Jan 2006		70			
14 Jan 2006	45	35	24		
21 Jan 2006	42	33	23		
28 Jan 2006	48	37	25		
4 Feb 2006	55	43	30		
11 Feb 2006	71	55	38		
18 Feb 2006	84	65	45		
25 Feb 2006	90	70	49		
4 Mar 2006	90	70	49		
11 Mar 2006	93	72	50		
18 Mar 2006	93	72	50		
25 Mar 2006	94	73	51		
1 Apr 2006	94	73	51		
8 Apr 2006	90	70	49		
15 Apr 2006	75	58	40		
22 Apr 2006	55	43	30		
29 Apr 2006	49	38	26		
6 May 2006	48	37	25		
13 May 2006	48	37	25		
20 May 2006	48	37	25		
23 May 2006	35	27	18		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A4 Irrigation calendar output as recommended by SWB scheduler, using onion crop for Bako climate and soil conditions

IRRIGATION CALENDAR

Farmer: _____ Crop: Onion (Texas Grano)
Field: Bako Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
3 Jan 2006		58			
10 Jan 2006	48	37	25		
17 Jan 2006	45	35	24		
24 Jan 2006	45	35	24		
31 Jan 2006	45	35	24		
7 Feb 2006	45	35	24		
14 Feb 2006	45	35	24		
21 Feb 2006	45	35	24		
28 Feb 2006	45	35	24		
7 Mar 2006	45	35	24		
14 Mar 2006	45	35	24		
21 Mar 2006	45	35	24		
28 Mar 2006	45	35	24		
4 Apr 2006	45	35	24		
11 Apr 2006	45	35	24		
18 Apr 2006	45	35	24		
25 Apr 2006	45	35	24		
2 May 2006	45	35	24		
9 May 2006	45	35	24		
16 May 2006	45	35	24		
23 May 2006	45	35	24		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A5 Irrigation calendar output as recommended by SWB scheduler, using onion crop for Zeway climate and soil conditions

IRRIGATION CALENDAR

Farmer: _____ Crop: Potato (Awash)
Field: Zeway Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
3 Jan 2006		55			
10 Jan 2006	42	33	23		
17 Jan 2006	41	32	22		
24 Jan 2006	41	32	22		
31 Jan 2006	48	37	25		
7 Feb 2006	55	43	30		
14 Feb 2006	68	53	37		
21 Feb 2006	74	57	39		
28 Feb 2006	75	58	40		
7 Mar 2006	80	62	43		
14 Mar 2006	81	63	44		
21 Mar 2006	81	63	44		
28 Mar 2006	81	63	44		
4 Apr 2006	80	62	43		
11 Apr 2006	80	62	43		
18 Apr 2006	77	60	42		
25 Apr 2006	62	48	33		
2 May 2006	49	38	26		
9 May 2006	48	37	25		
16 May 2006	48	37	25		
23 May 2006	48	37	25		
29 May 2006	45	35	24		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A6 Irrigation calendar output as recommended by SWB scheduler, using onion crop for Zeway climate and soil conditions

IRRIGATION CALENDAR

Farmer: _____ Crop: Onion (Texas Grano)
Field: Zeway Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
7 Jan 2006		70			
14 Jan 2006	48	37	25		
21 Jan 2006	48	37	25		
28 Jan 2006	49	38	26		
4 Feb 2006	51	40	28		
11 Feb 2006	58	45	31		
18 Feb 2006	64	50	35		
25 Feb 2006	68	53	37		
4 Mar 2006	71	55	38		
11 Mar 2006	74	57	39		
18 Mar 2006	74	57	39		
25 Mar 2006	74	57	39		
1 Apr 2006	74	57	39		
8 Apr 2006	71	55	38		
15 Apr 2006	71	55	38		
22 Apr 2006	71	55	38		
29 Apr 2006	71	55	38		
6 May 2006	71	55	38		
13 May 2006	71	55	38		
18 May 2006	55	43	30		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain < 0, then skip the irrigation, i.e. irrigation amount = 0.

Table A7 Irrigation calendar output as recommended by SWB scheduler, using potato crop for Shashemene climate and soil conditions

IRRIGATION CALENDAR

Farmer: Crop: Potato (Awash)
Field: Shashemene Planting date: 01/01/2006
Soil type: Sandy clay loam Wetting Front Detectors:
Irrigation system: Furrow Shallow: 4
Management options: Fixed, every seven days Deep: 4
Irrigation frequency option: Interval (Days) Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
7 Jan 2006		68			
14 Jan 2006	45	35	24		
21 Jan 2006	42	33	23		
28 Jan 2006	42	33	23		
4 Feb 2006	49	38	26		
11 Feb 2006	62	48	33		
18 Feb 2006	80	62	43		
25 Feb 2006	88	68	47		
4 Mar 2006	87	67	46		
11 Mar 2006	84	65	45		
18 Mar 2006	84	65	45		
25 Mar 2006	84	65	45		
1 Apr 2006	84	65	45		
8 Apr 2006	84	65	45		
15 Apr 2006	84	65	45		
22 Apr 2006	84	65	45		
29 Apr 2006	84	65	45		
6 May 2006	81	63	44		
13 May 2006	67	52	36		
20 May 2006	51	40	28		
27 May 2006	48	37	25		
30 May 2006	35	27	18		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

Table A8 Irrigation calendar output as recommended by SWB scheduler, using onion crop for Shashemene climate and soil conditions

IRRIGATION CALENDAR

Farmer:
Field: Shashemene
Soil type: Sandy clay loam
Irrigation system: Furrow
Management options: Fixed, every seven days
Irrigation frequency option: Interval (Days)

Crop: Onion (Texas Grano)
Planting date: 01/01/2006
Wetting Front Detectors:
 Shallow: 4
 Deep: 4
Response factor (%): 20

Date and Day	* Irrigation requirement (IR), depending on number of shallow and deep Wetting Front Detector (WFD) responses			Rain since previous irrigation (mm)	Recommended irrigation amount = IR-Rain
	0-2 Shallow and 0-2 Deep	3-4 Shallow and 0-2 Deep	3-4 Shallow and 3-4 Deep		
	Irrigation requirement (mm)				
7 Jan 2006		72			
14 Jan 2006	48	37	25		
21 Jan 2006	48	37	25		
28 Jan 2006	49	38	26		
4 Feb 2006	54	42	29		
11 Feb 2006	58	45	31		
18 Feb 2006	67	52	36		
25 Feb 2006	77	60	42		
4 Mar 2006	84	65	45		
11 Mar 2006	81	63	44		
18 Mar 2006	84	65	45		
25 Mar 2006	84	65	45		
1 Apr 2006	84	65	45		
8 Apr 2006	84	65	45		
15 Apr 2006	81	63	44		
22 Apr 2006	81	63	44		
29 Apr 2006	81	63	44		
6 May 2006	81	63	44		
13 May 2006	81	63	44		
20 May 2006	80	62	43		
27 May 2006	80	62	43		
30 May 2006	35	27	18		

*** Notes**

- Just before irrigation, check Wetting Front Detector response (to the previous irrigation) and use to correct the irrigation requirement.
- Encircle the applicable irrigation requirement, based on WFD response.
- If 0-2 shallow 3-4 deep WFDs have responded, check your shallow WFDs for problems.
- Record rain and empty gauge just before irrigation.
- Subtract rainfall from irrigation requirement to obtain the irrigation amount.
- If IR-rain<0, then skip the irrigation, i.e. irrigation amount = 0.

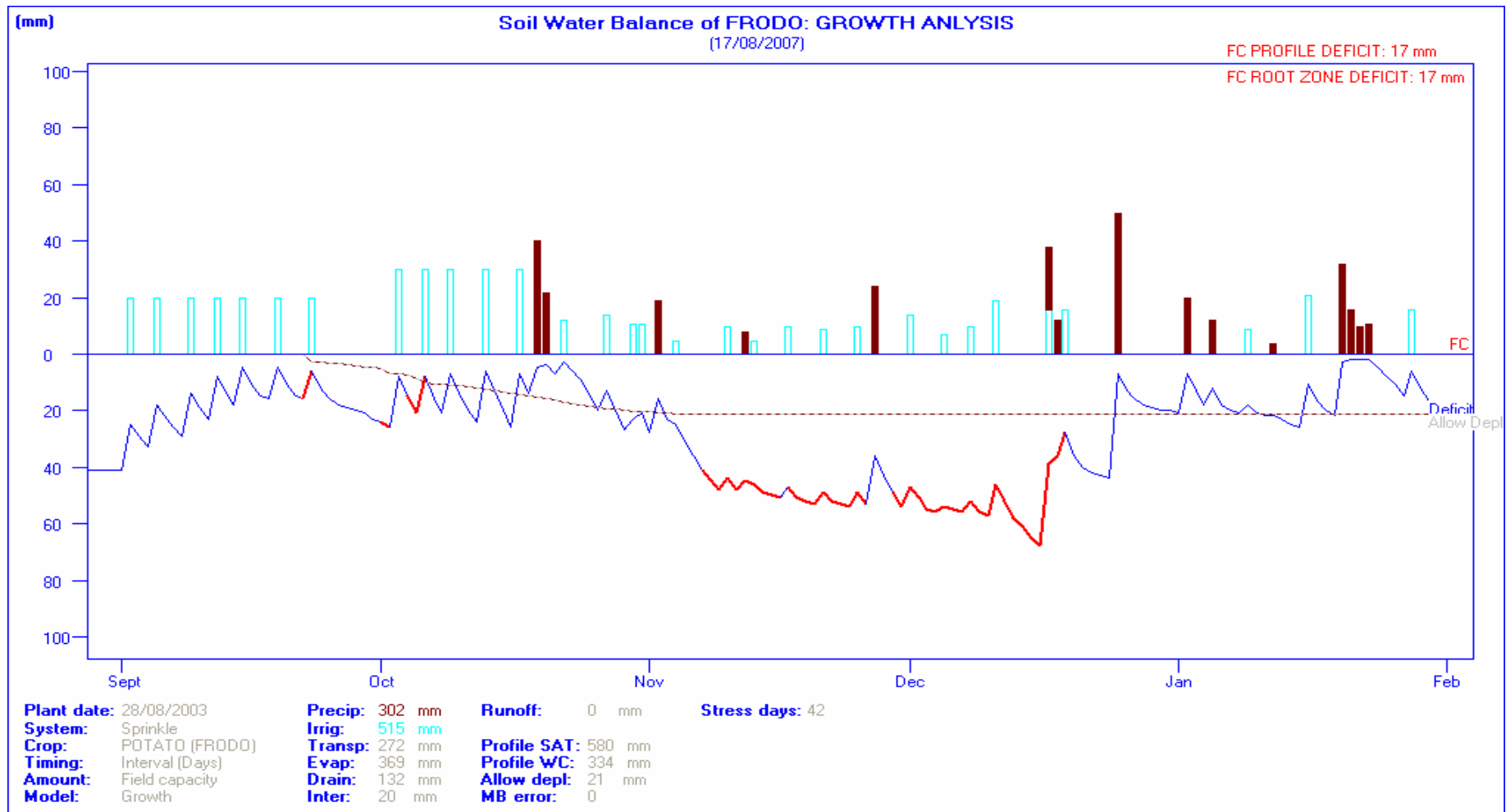


Figure A1 Irrigation, rainfall and the soil water balance during the growing period of potato, cv. Frodo

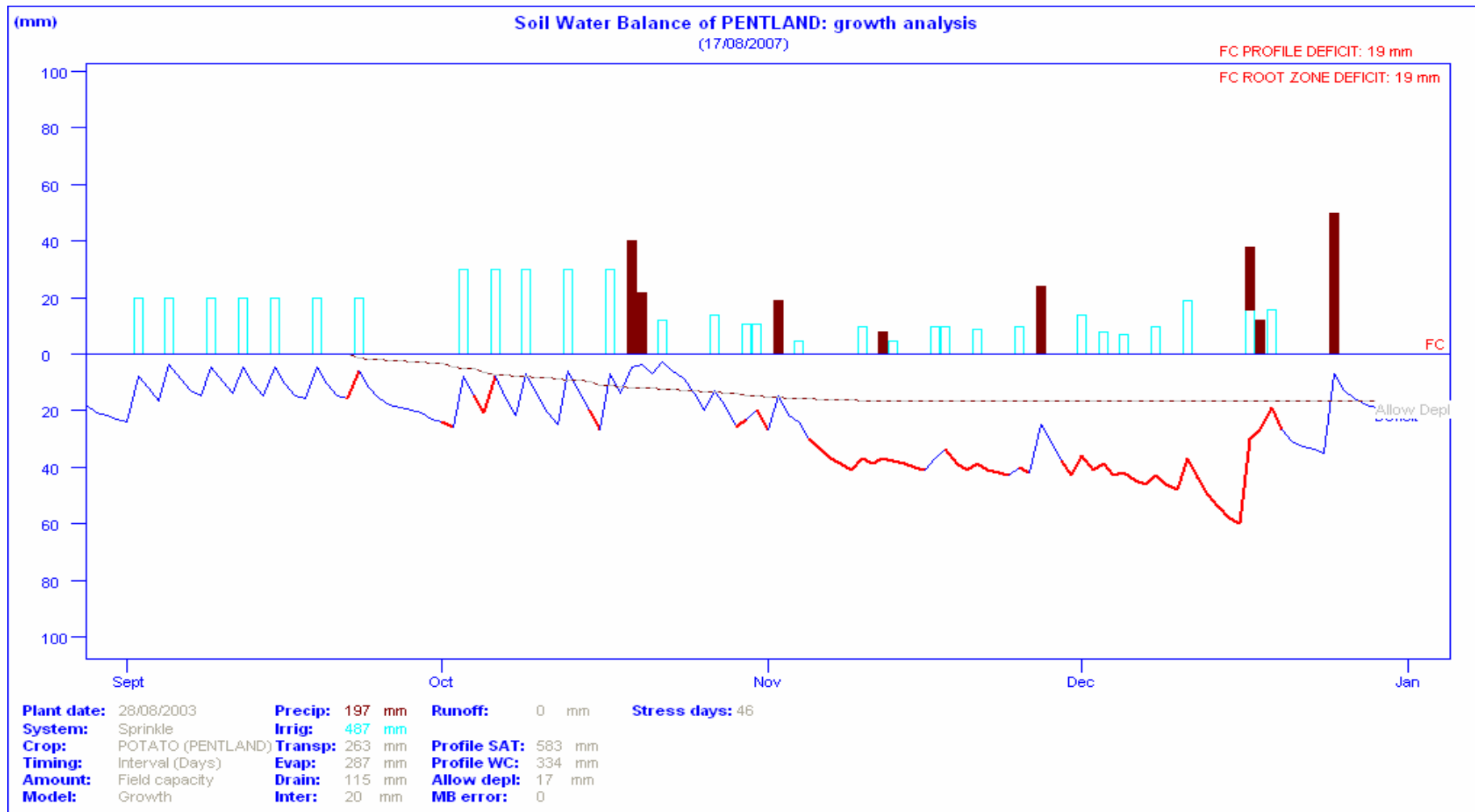


Figure A2 Irrigation, rainfall and the soil water balance during the growing period of Potato, cv. Pentland Dell

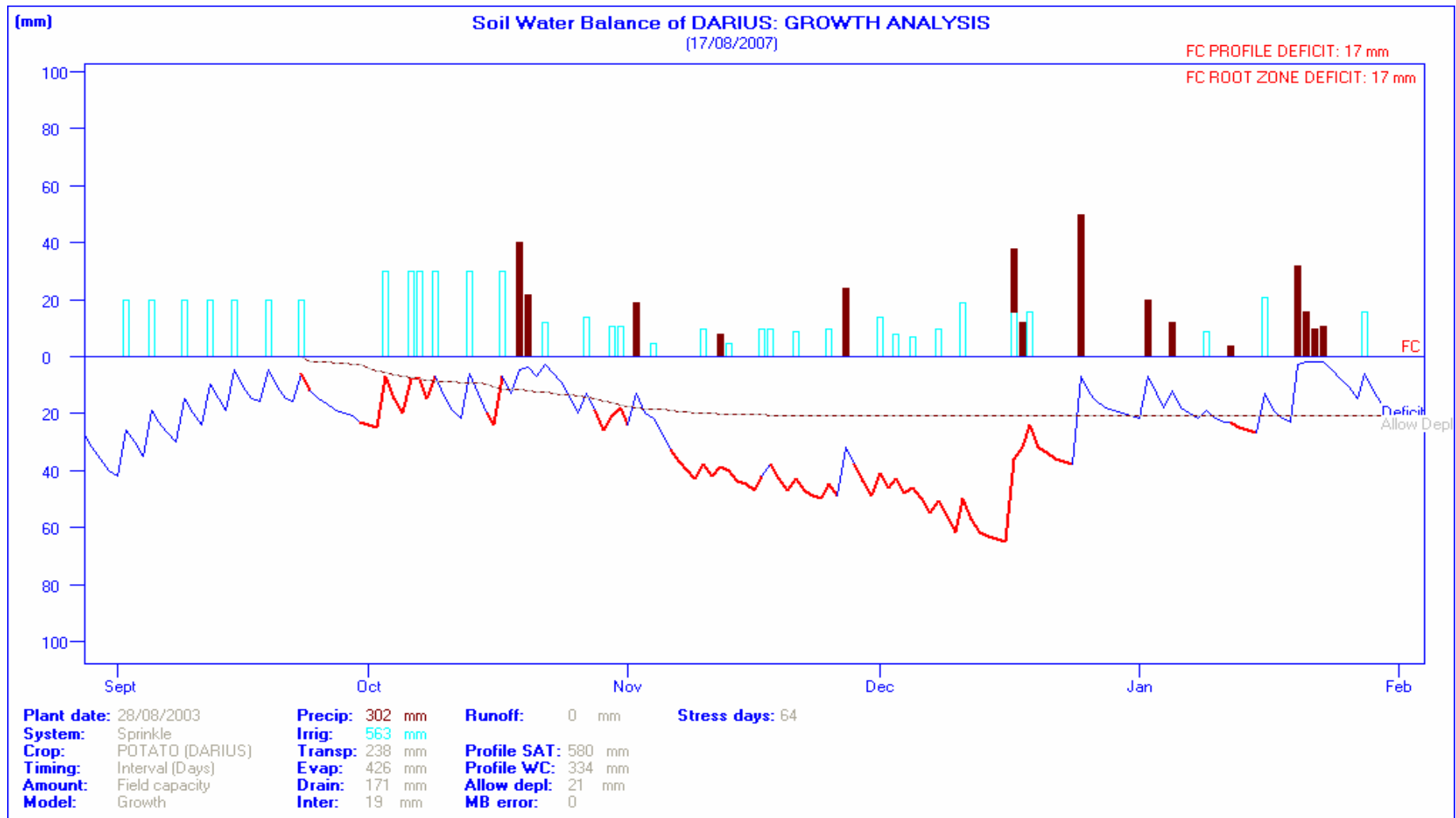


Figure A3 Irrigation, rainfall and the soil water balance during the growing period of potato, cv. Darius

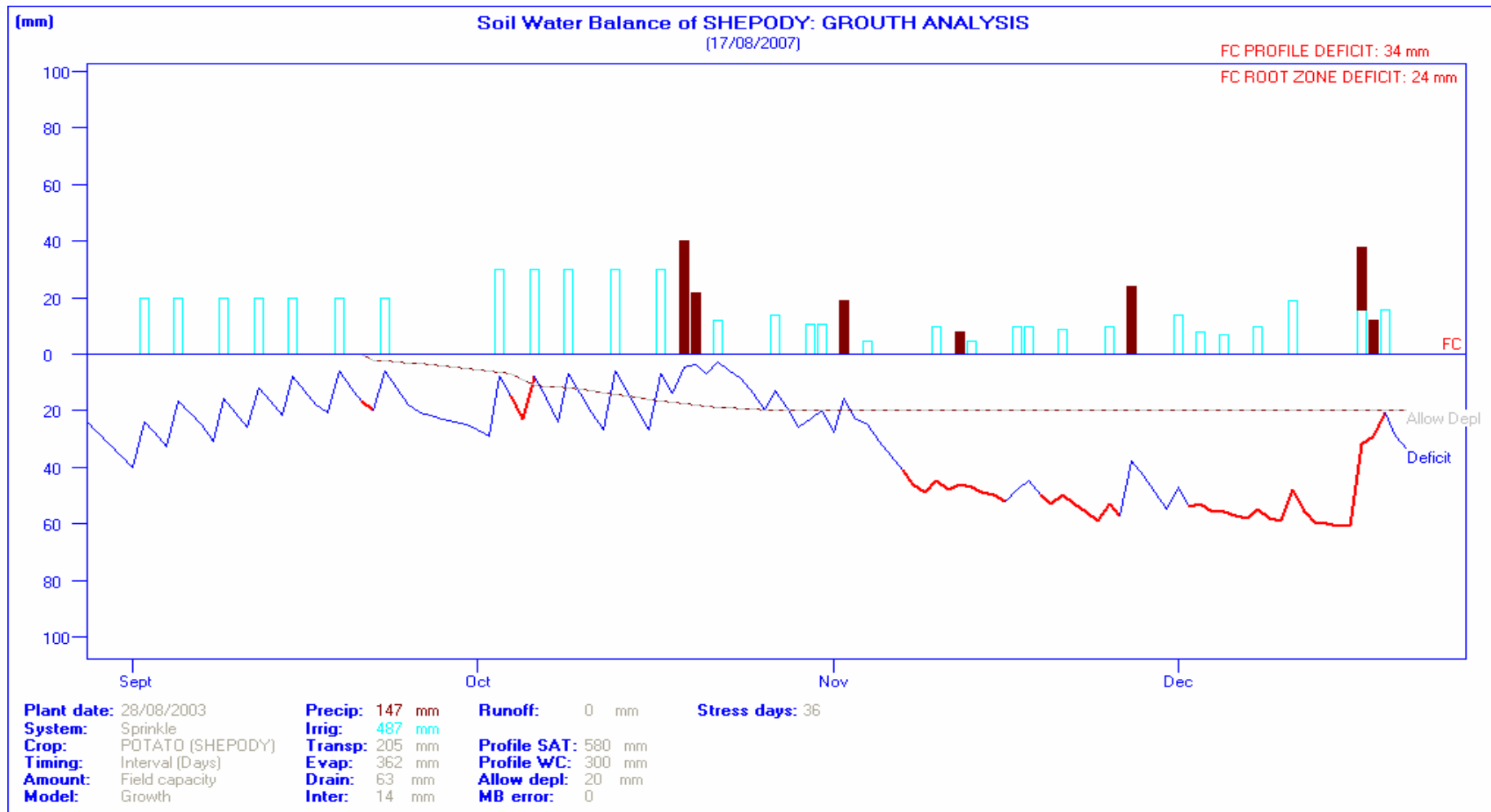


Figure A4 Irrigation, rainfall and the soil water balance during the growing period of potato, cv. Shepody

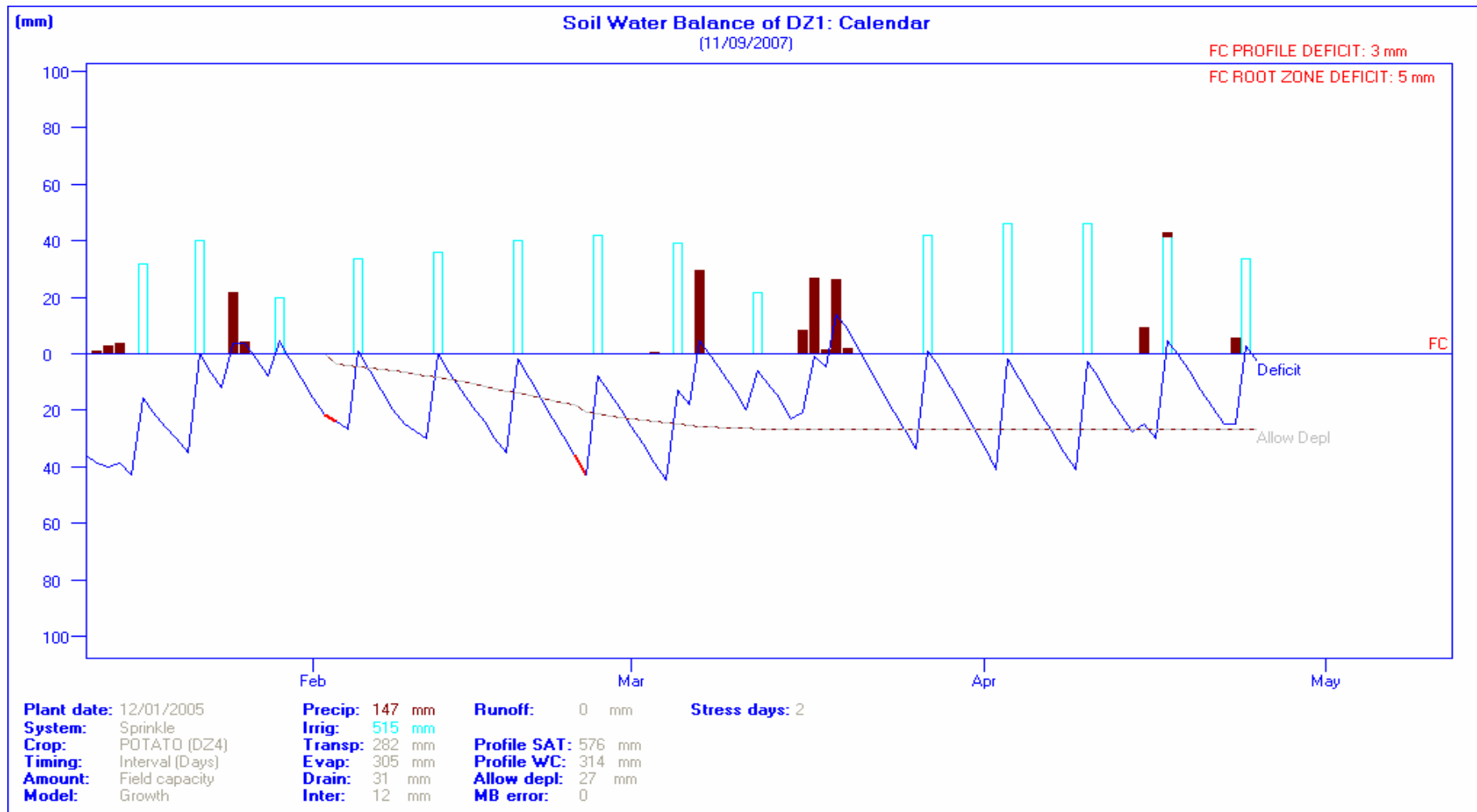


Figure A5 Irrigation, rainfall and the soil water balance during the growing period of Soil Water Balance (DZ1) treatment

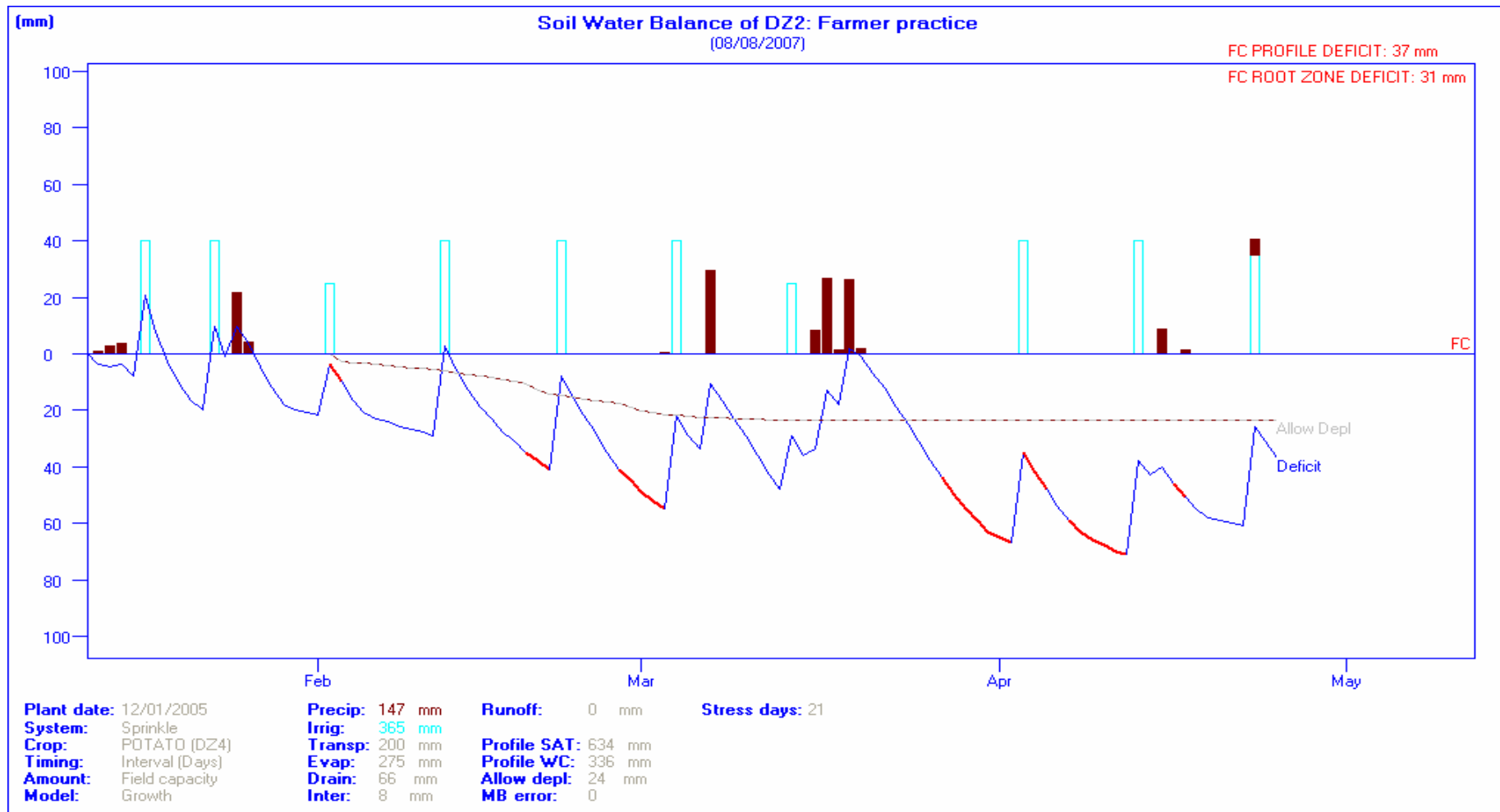


Figure A6 Irrigation, rainfall and the soil water balance during the growing period of Farmer's Traditional Practice (DZ2) treatment

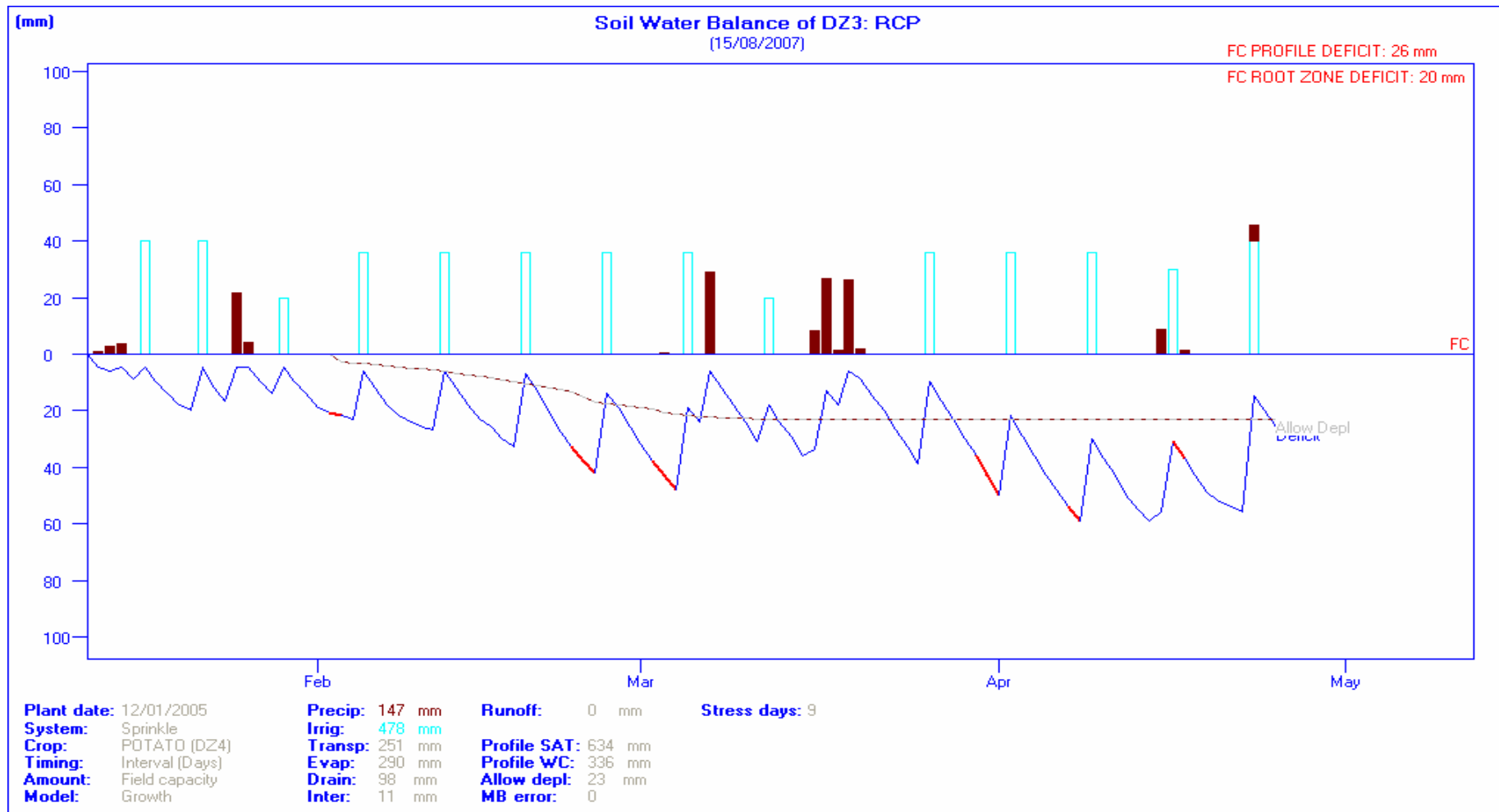


Figure A7 Irrigation, rainfall and the soil water balance during the growing period of Research Centre Practice (DZ3) treatment

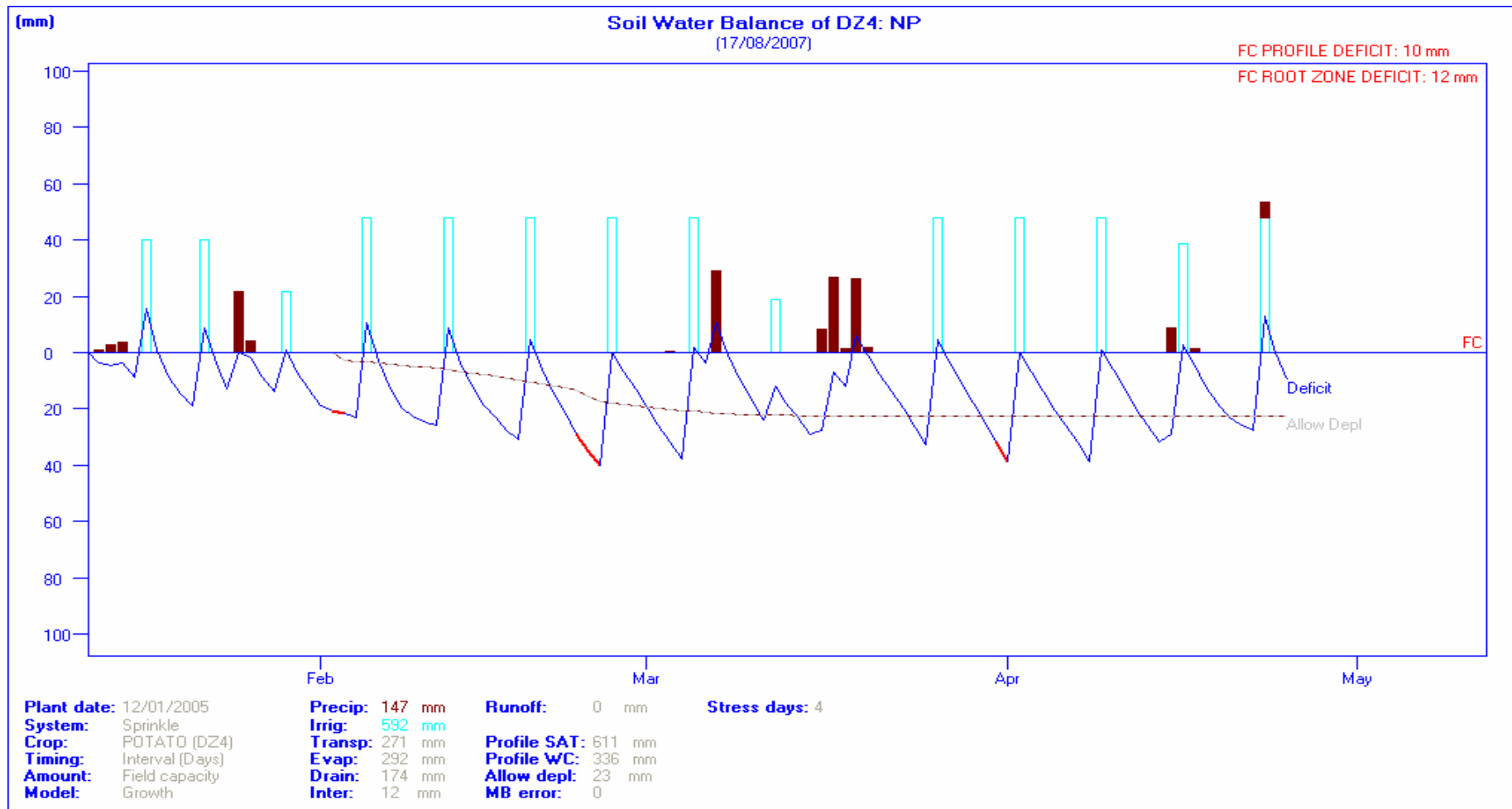


Figure A8 Irrigation, rainfall and the soil water balance during the growing period of Neutron Probe (DZ4) treatment

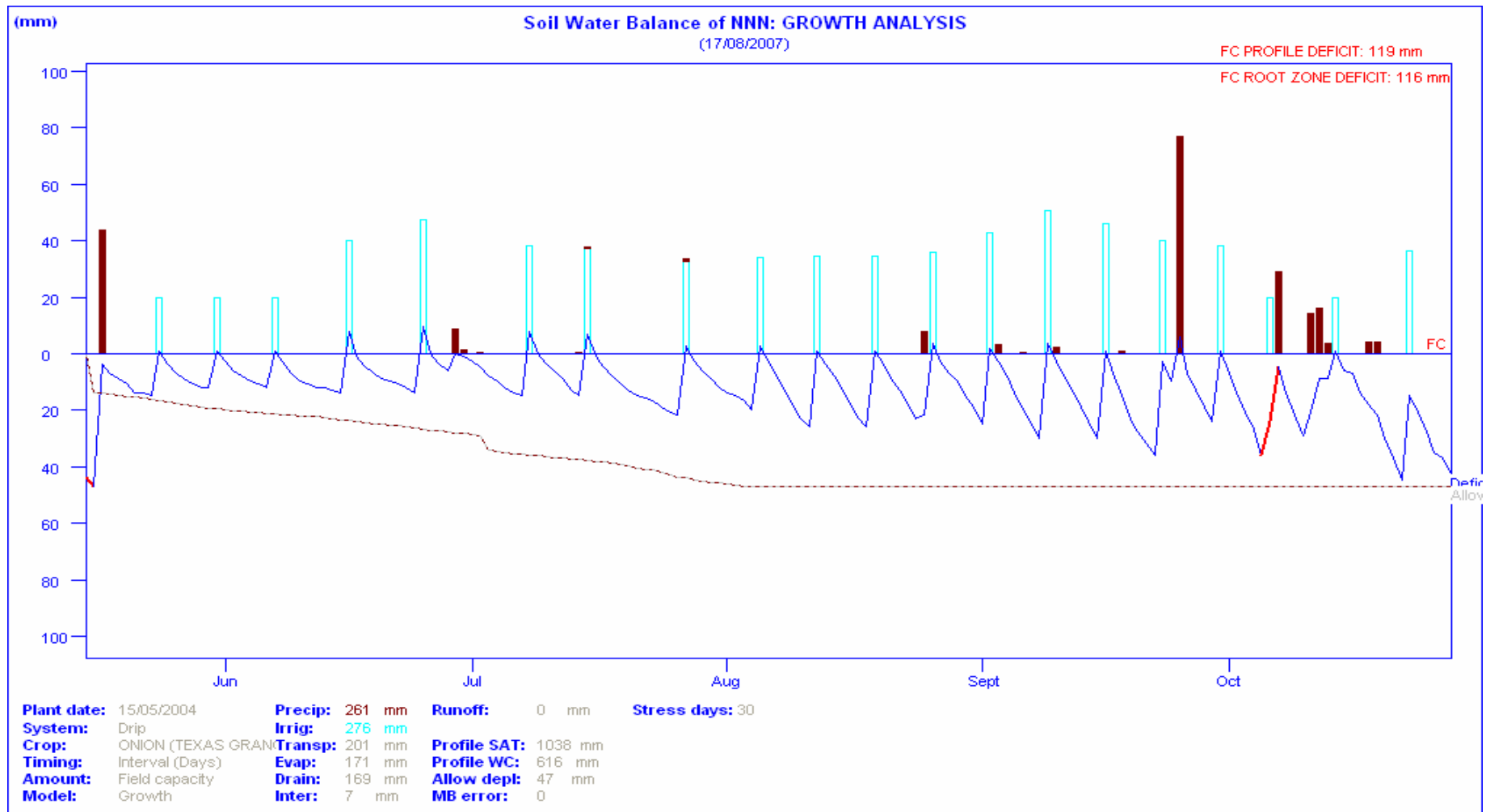


Figure A9 Irrigation, rainfall and the soil water balance during the growing period of onion (NNN) treatment

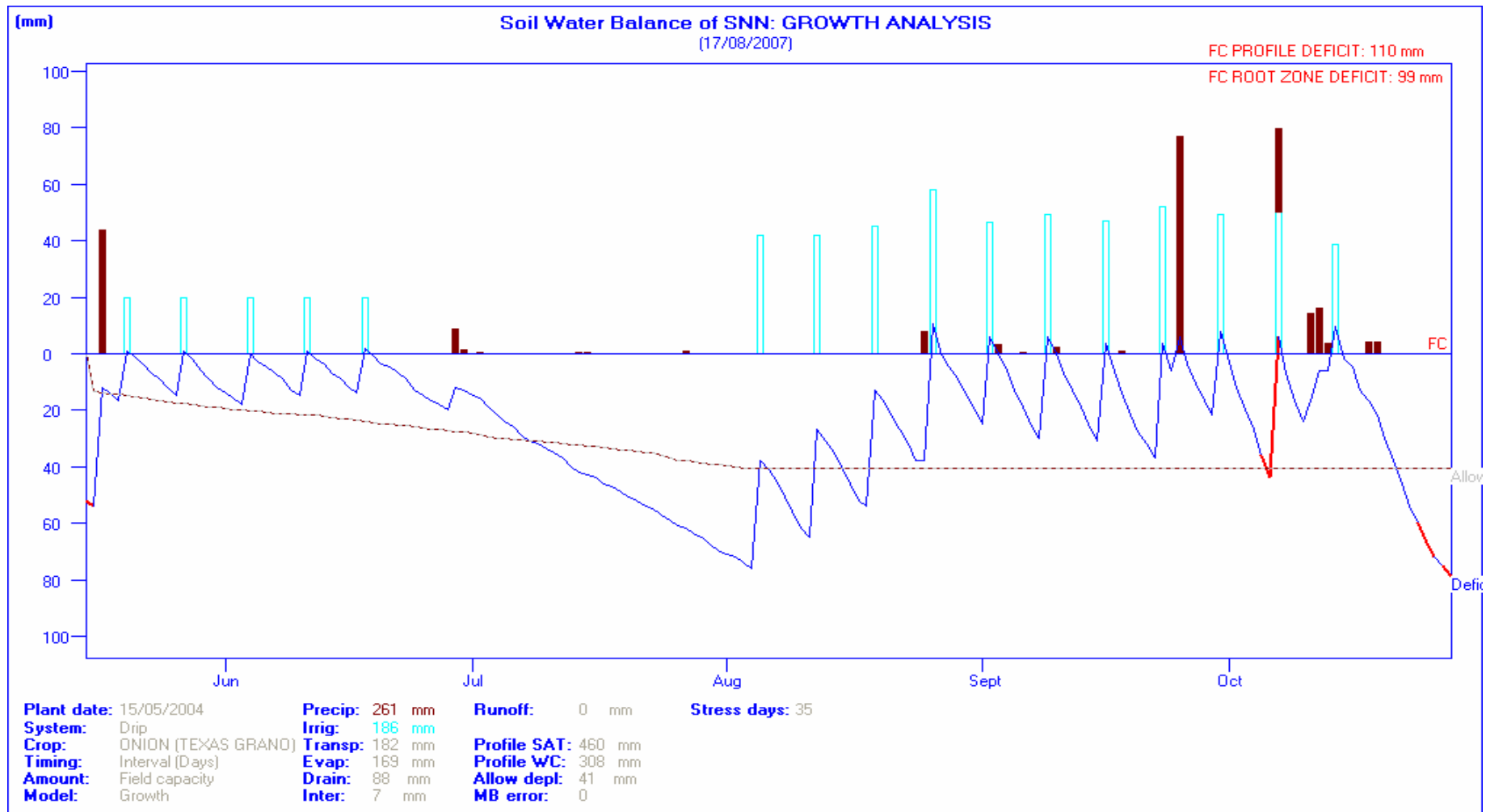


Figure A10 Irrigation, rainfall and the soil water balance during the growing period of onion (SNN) treatment

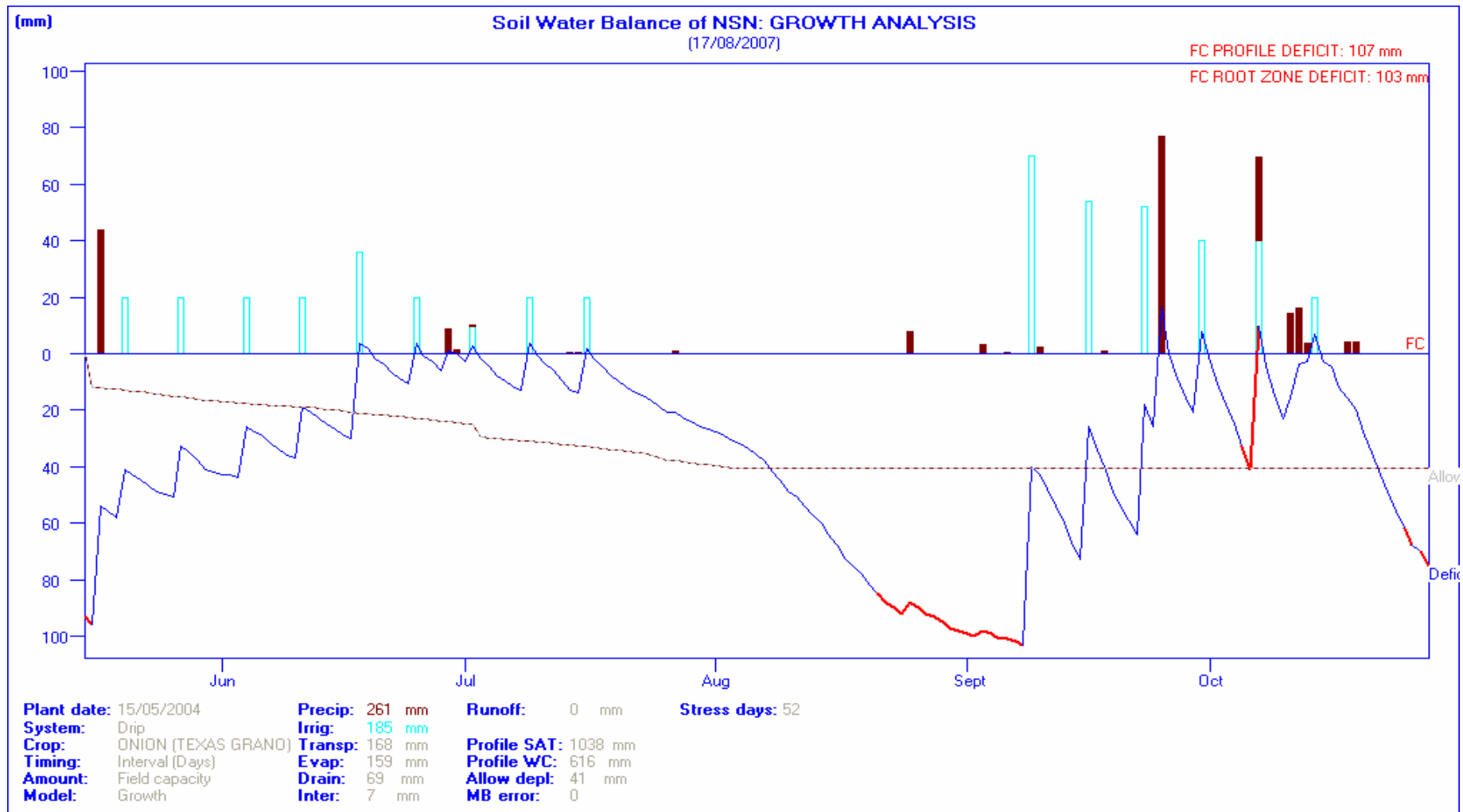


Figure A11 Irrigation, rainfall and the soil water balance during the growing period of onion (NSN) treatment

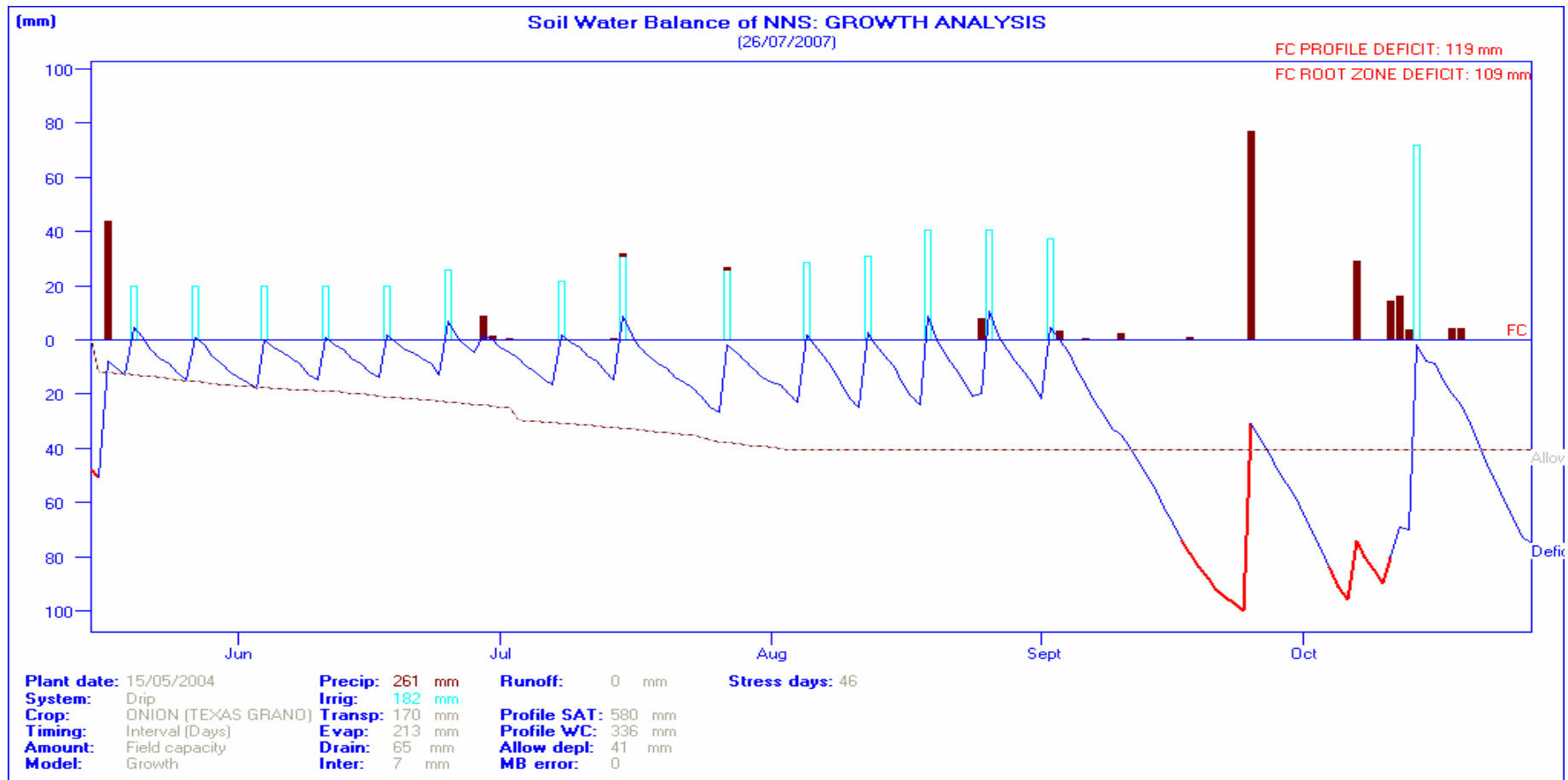


Figure A12 Irrigation, rainfall and the soil water balance during the growing period of onion (NNS) treatment