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August 1980

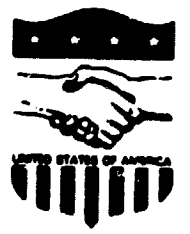
### CANADIAN CROP CALENDARS IN SUPPORT OF THE EARLY WARNING PROJECT

M. H. Trenchard and T. Hodges

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CANADIAN CROP CALENDARS IN SUPPORT OF THE EARLY WARNING PROJECT

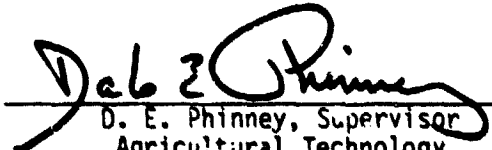
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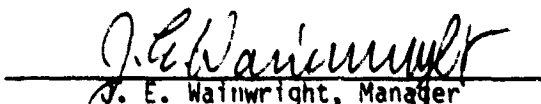
This report described Vegetation/Soils/Field Research activities  
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PREPARED BY

M. H. Trenchard and T. Hodges

APPROVED BY

  
D. E. Phinney, Supervisor  
Agricultural Technology

  
J. E. Wainwright, Manager  
Development and Evaluation Department

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## SUMMARY

The Canadian crop calendars in this report were produced for the Large Area Crop Inventory Experiment (LACIE), and the enclosed ancillary material was developed to evaluate the LACIE crop calendars. The LACIE crop calendars are in appendix A. Long-term monthly averages of daily maximum and daily minimum temperatures for subregions of provinces were used to simulate normal daily maximum and minimum temperatures. The Robertson (1968) spring wheat and Williams (1974) spring barley phenology models were run using the simulated daily temperatures and daylengths for appropriate latitudes. Simulated daily temperatures are in appendix B. Phenology model output for spring wheat is in appendix C, and output for spring barley is in appendix D. Evaluation of the LACIE crop calendars may be found in an earlier report (Hodges et al., 1980).

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Hodges, T.; Sestak, M. L.; and Trenchard, M. H.: Crop Calendars for the U.S., U.S.S.R., and Canada in Support of the Early Warning Project. LEMSCO-14673, JSC-16359, NASA/JSC (Houston), May 1980.

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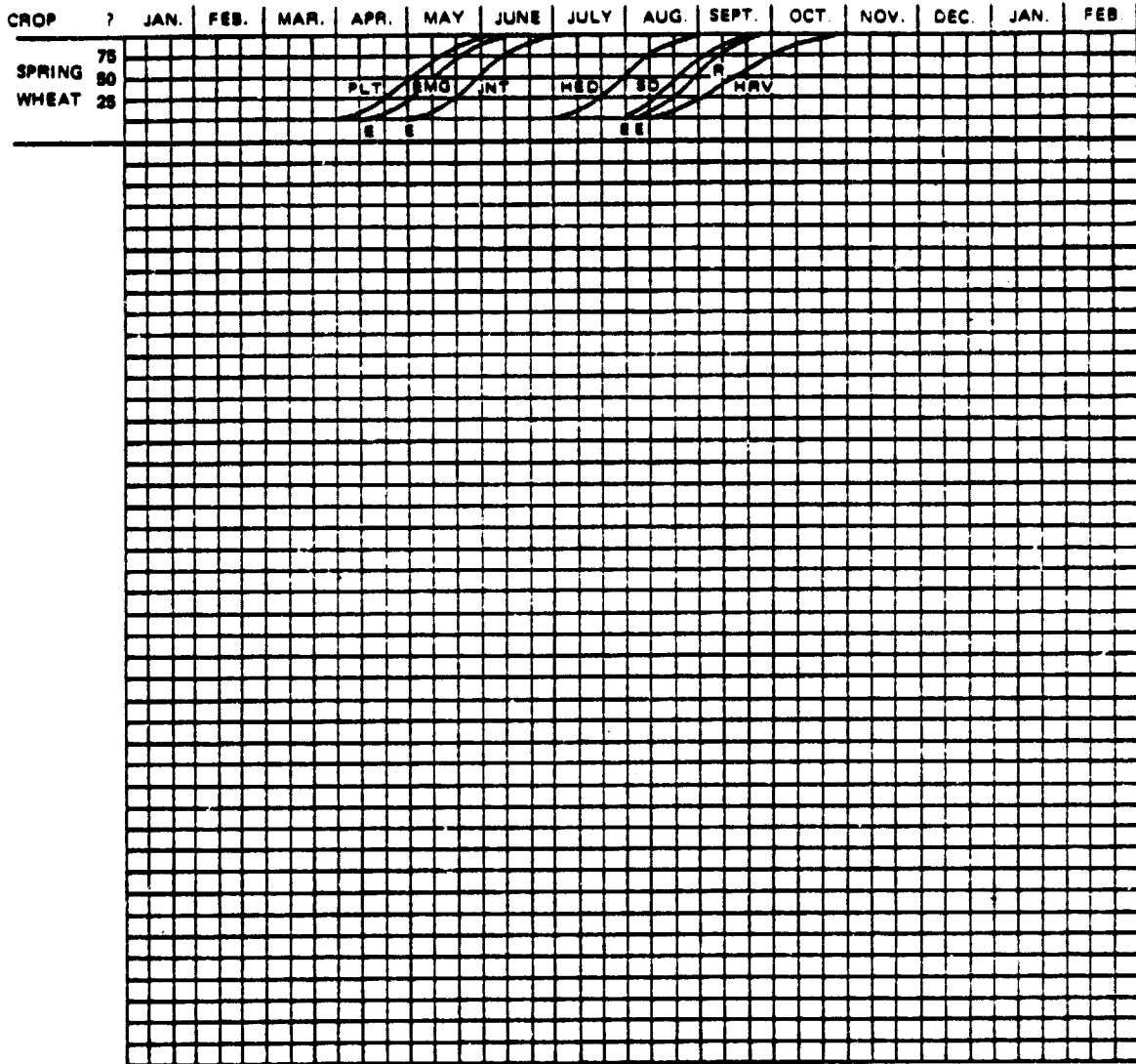
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APPENDIX A  
LACIE CROP CALENDARS



CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 ALBERTA AREA 1: SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS

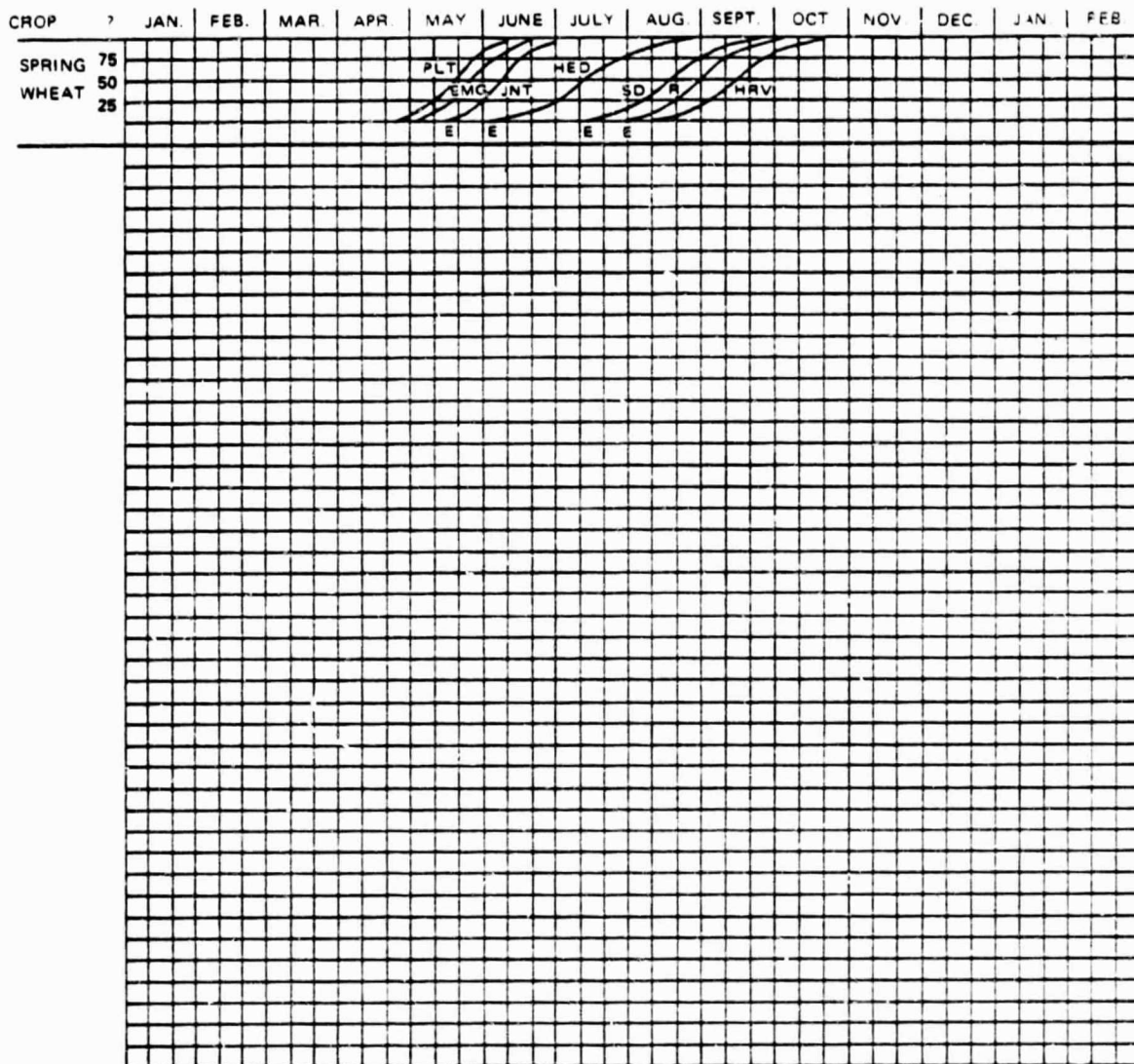


- LEGEND**
- E Under stage name, indicates rough estimate of date
  - EMG Emergence
  - HED Heading
  - HRV Harvest
  - JNT Jointing
  - PLT Planting
  - R Ripe
  - SD Soft dough
  - TRN Turning

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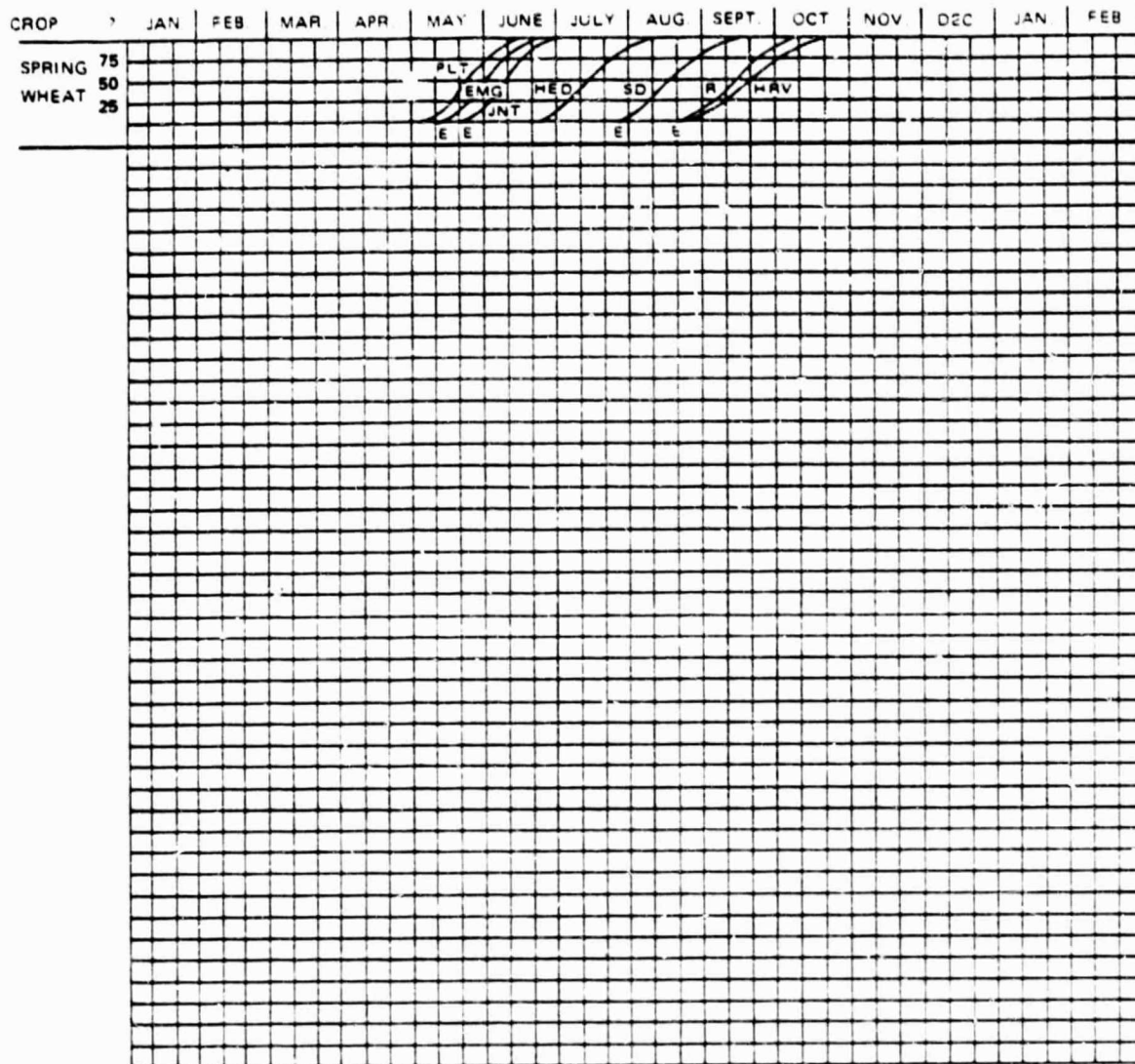
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

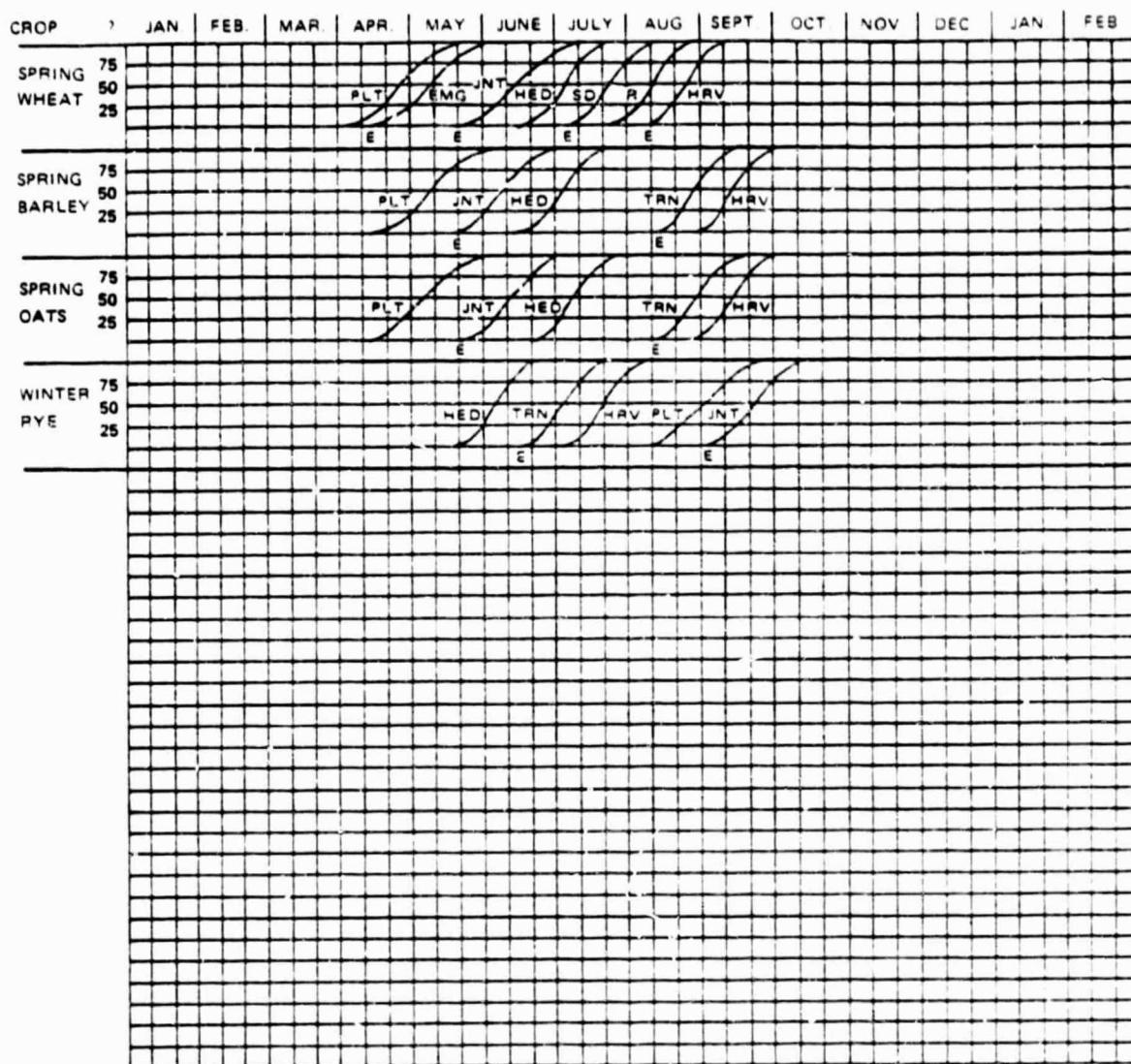
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

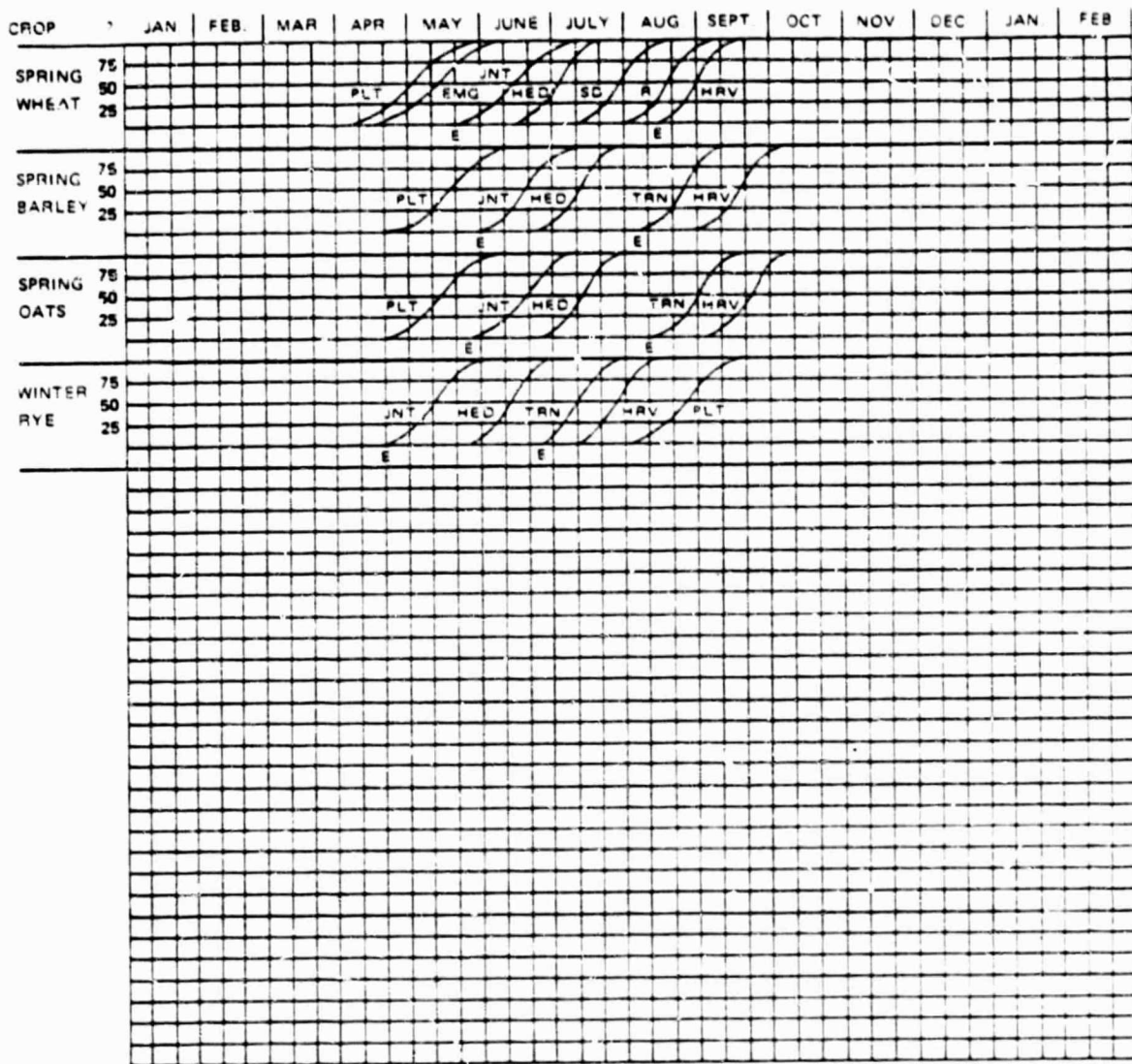
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 EDMONTON, ALBERTA, CANADA

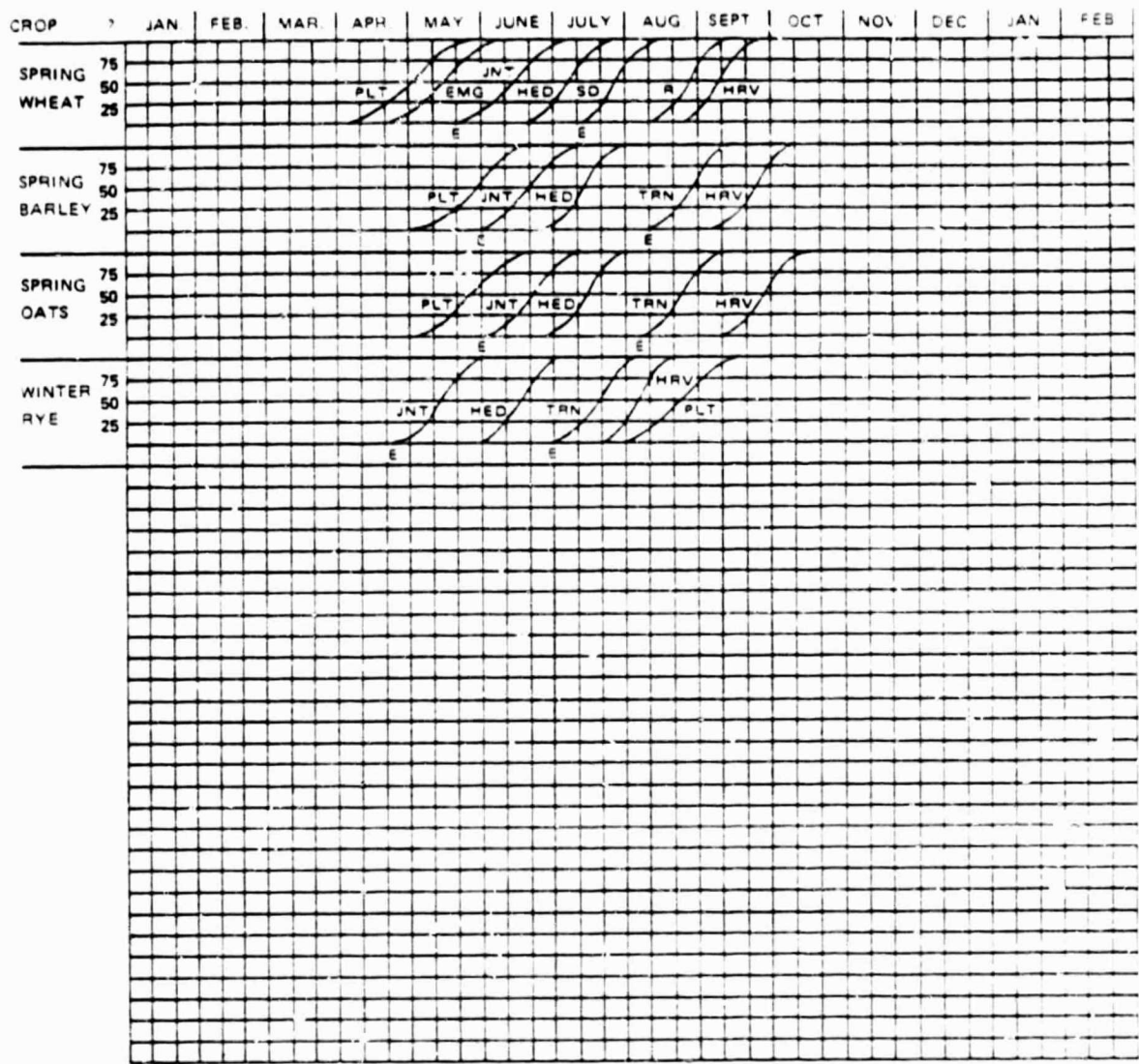


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Frost
- SD Snowmelt
- TRN Turning

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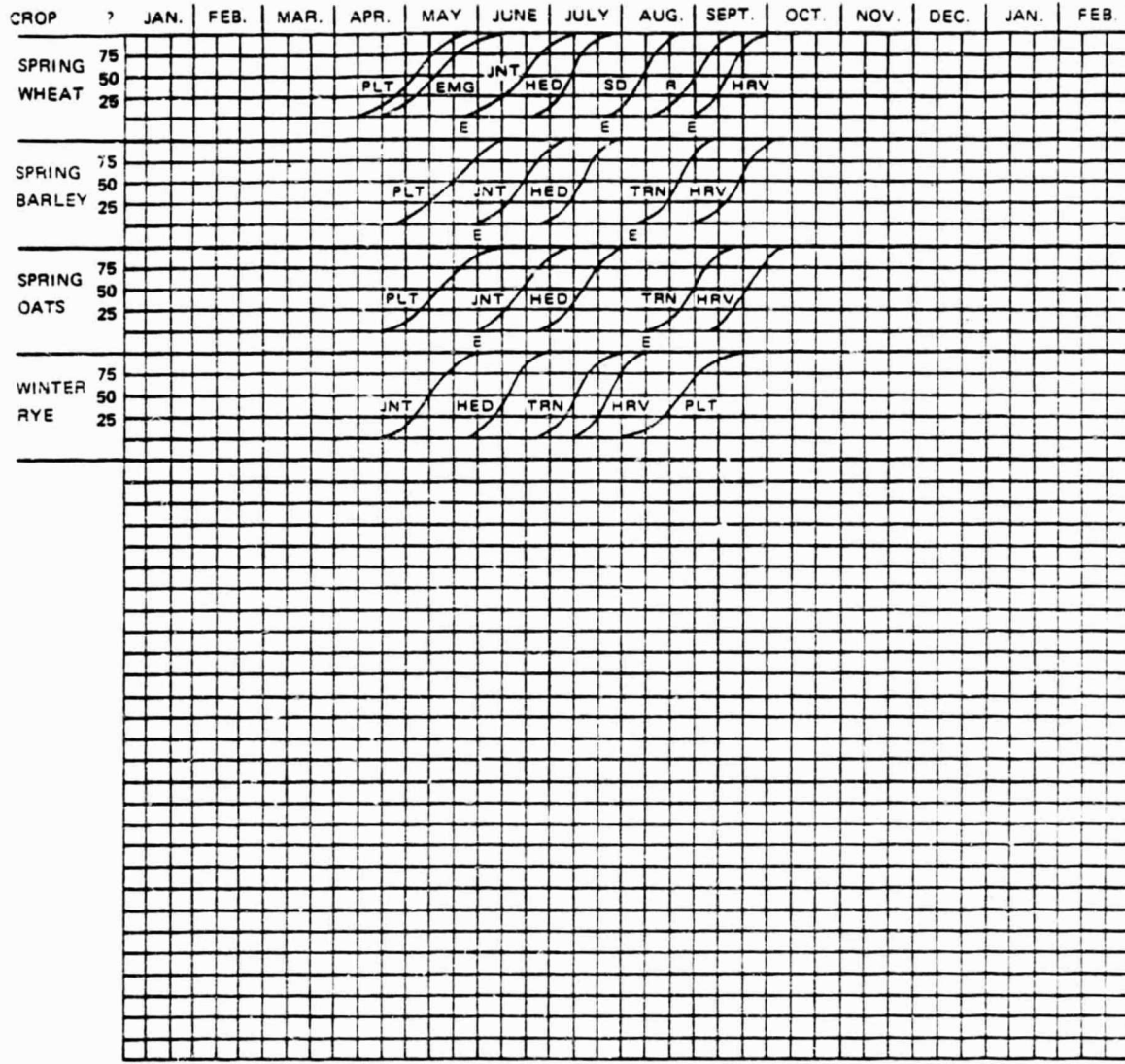
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LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

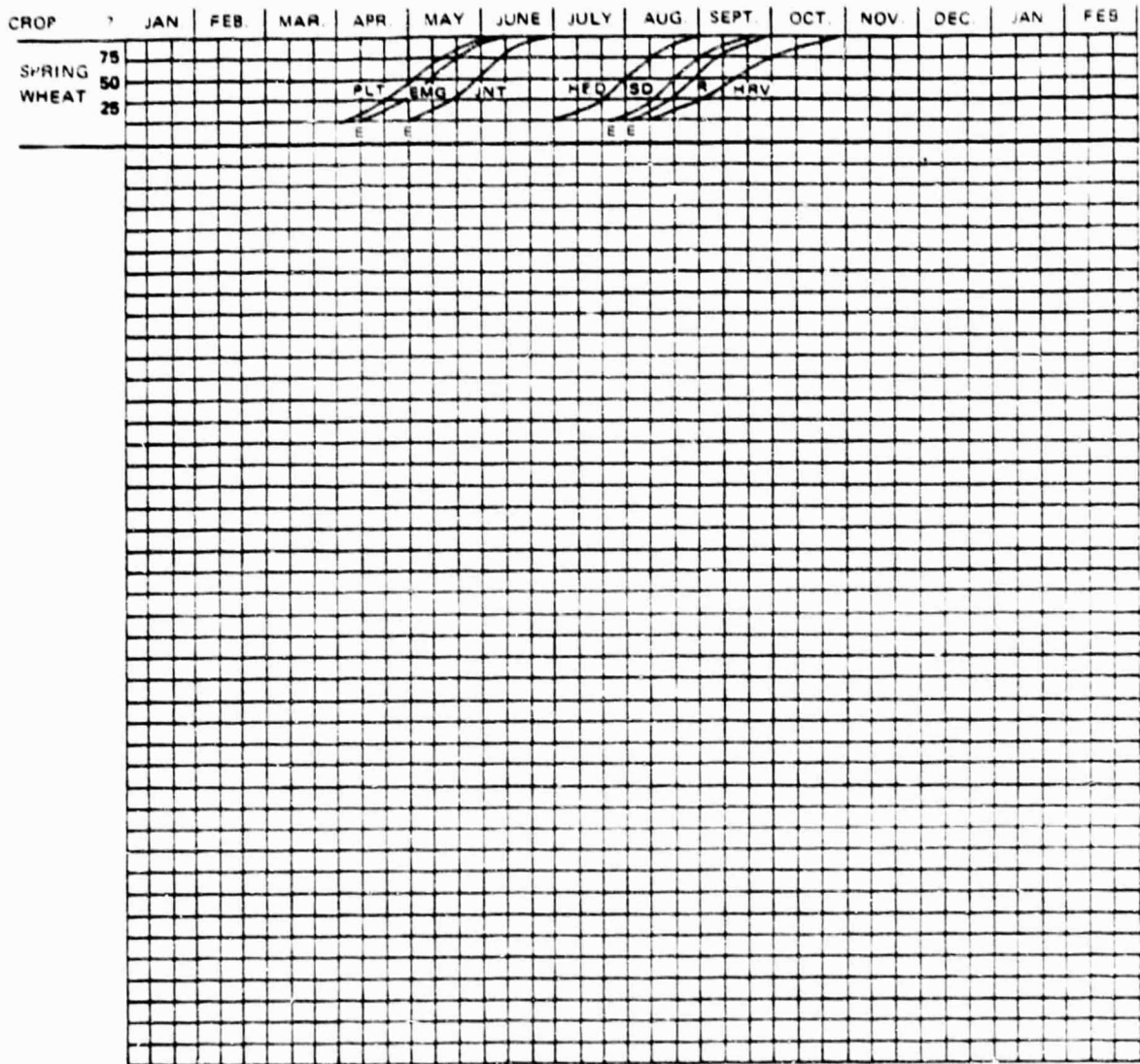
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LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

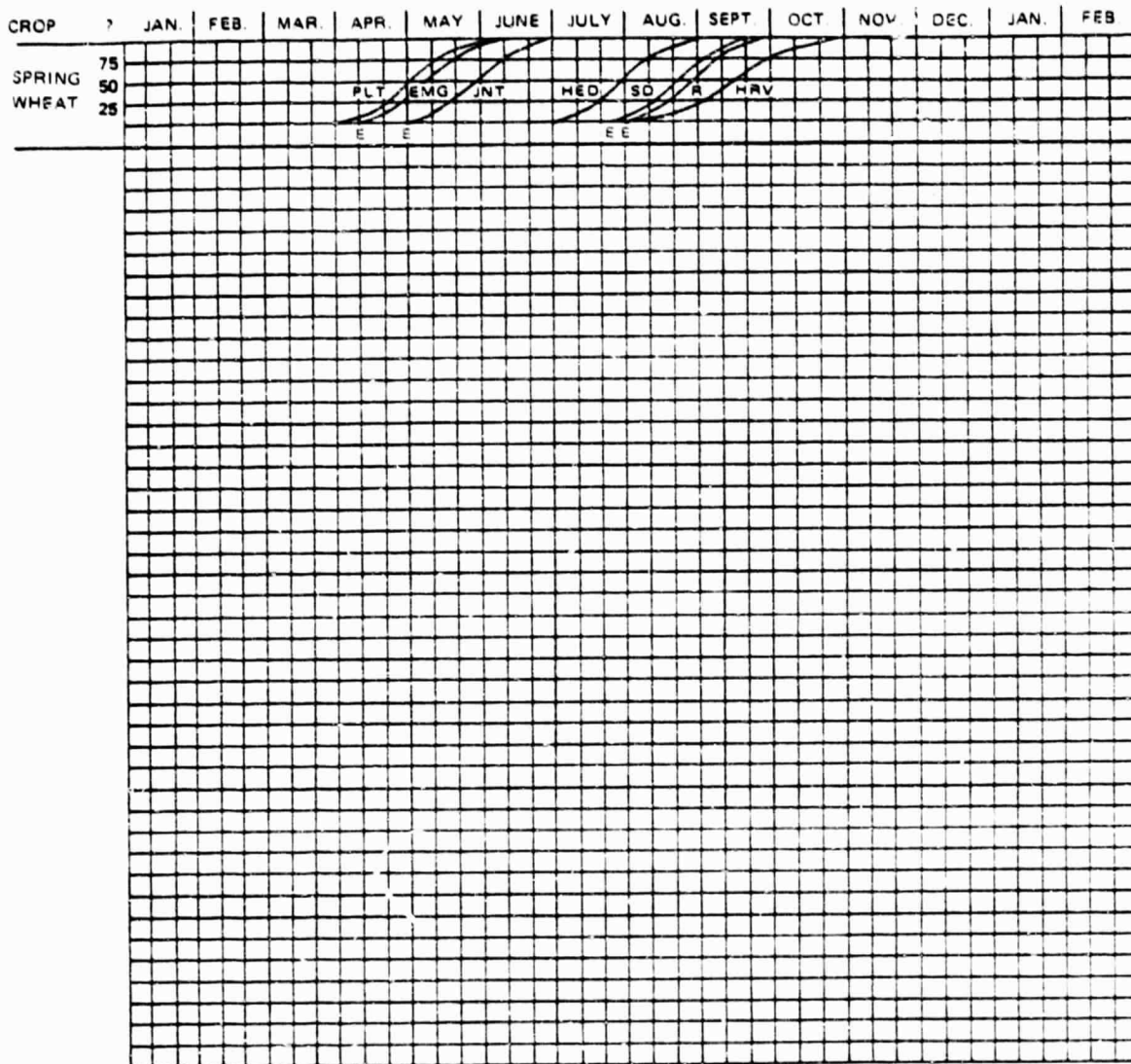
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 1 SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



- LEGEND
- E      Under stage name, indicates rough estimate of date
  - EMG    Emergence
  - HED    Heading
  - HRV    Harvest
  - JNT    Jointing
  - PLT    Planting
  - R      Ripe
  - SD     Soft dough
  - TRN    Turning



CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 2: SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS

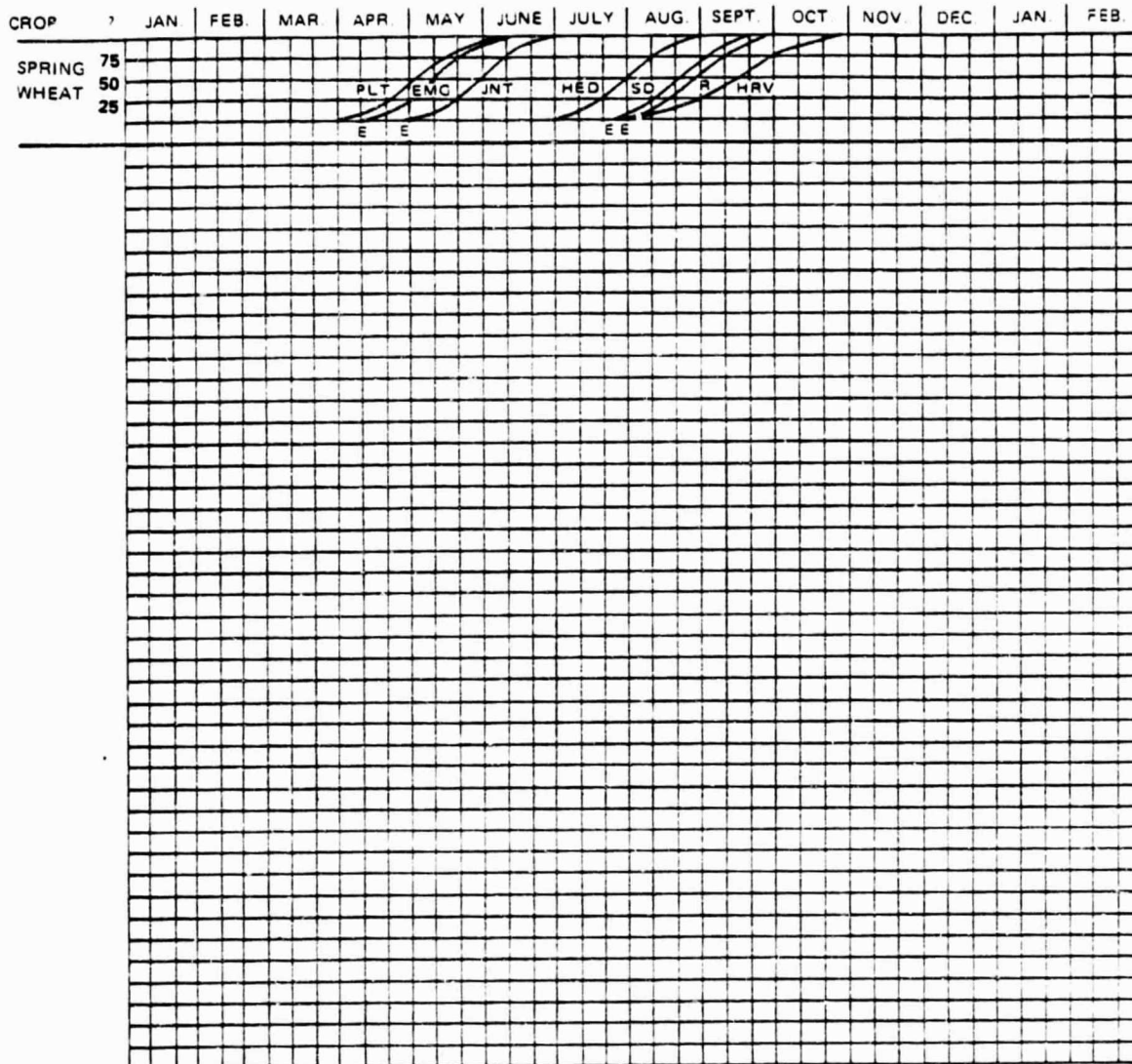


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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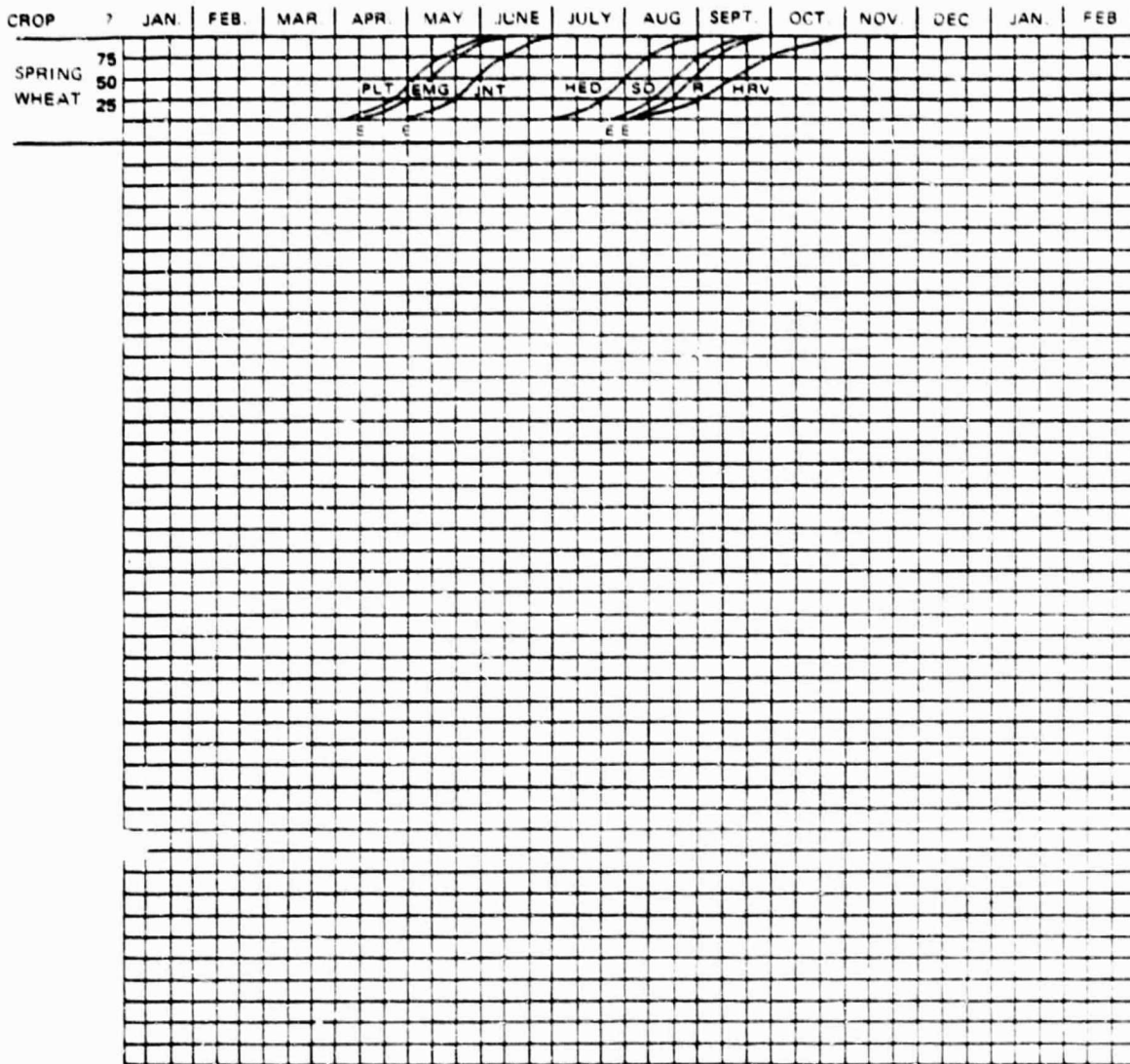


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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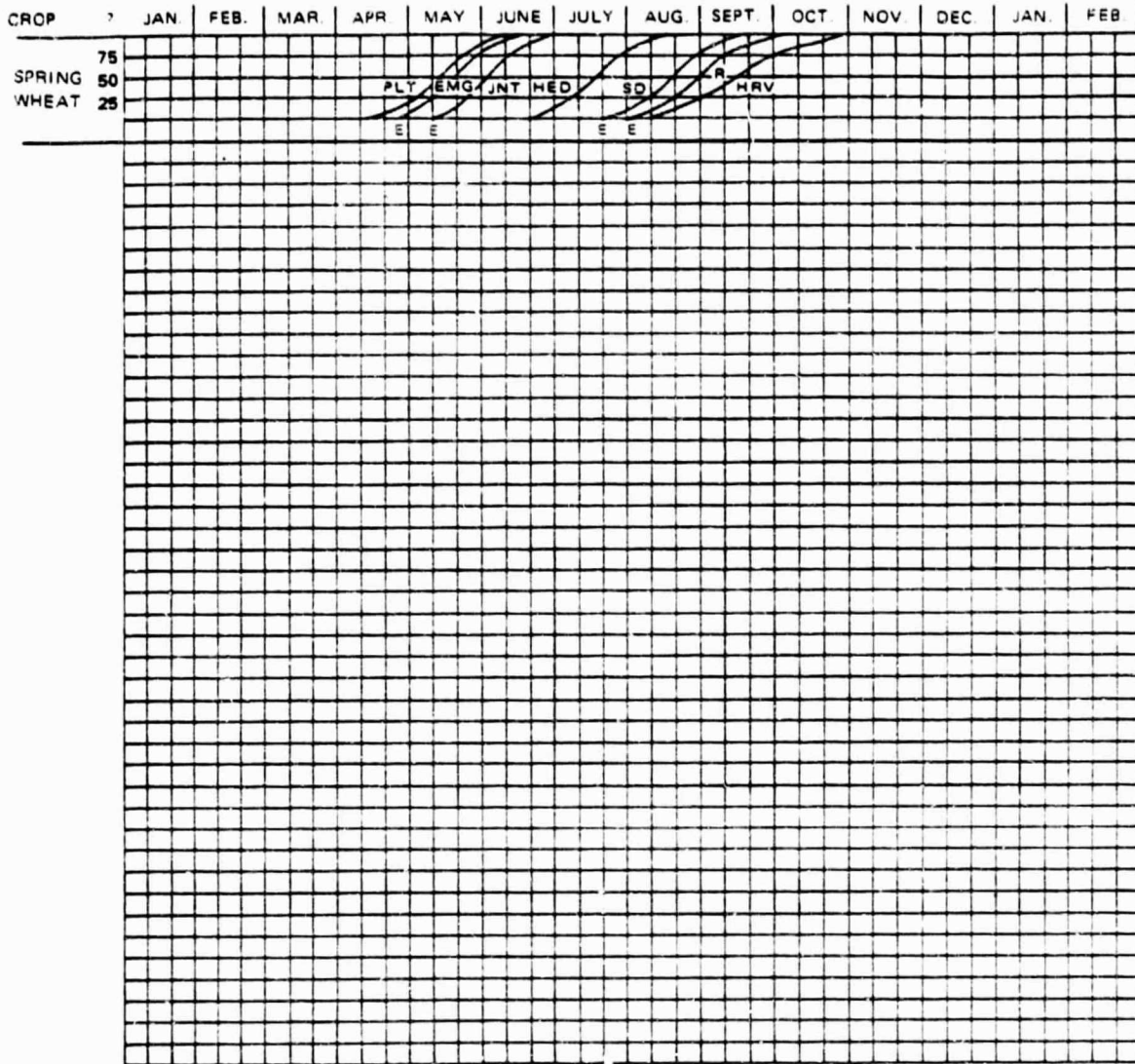
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 4: SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

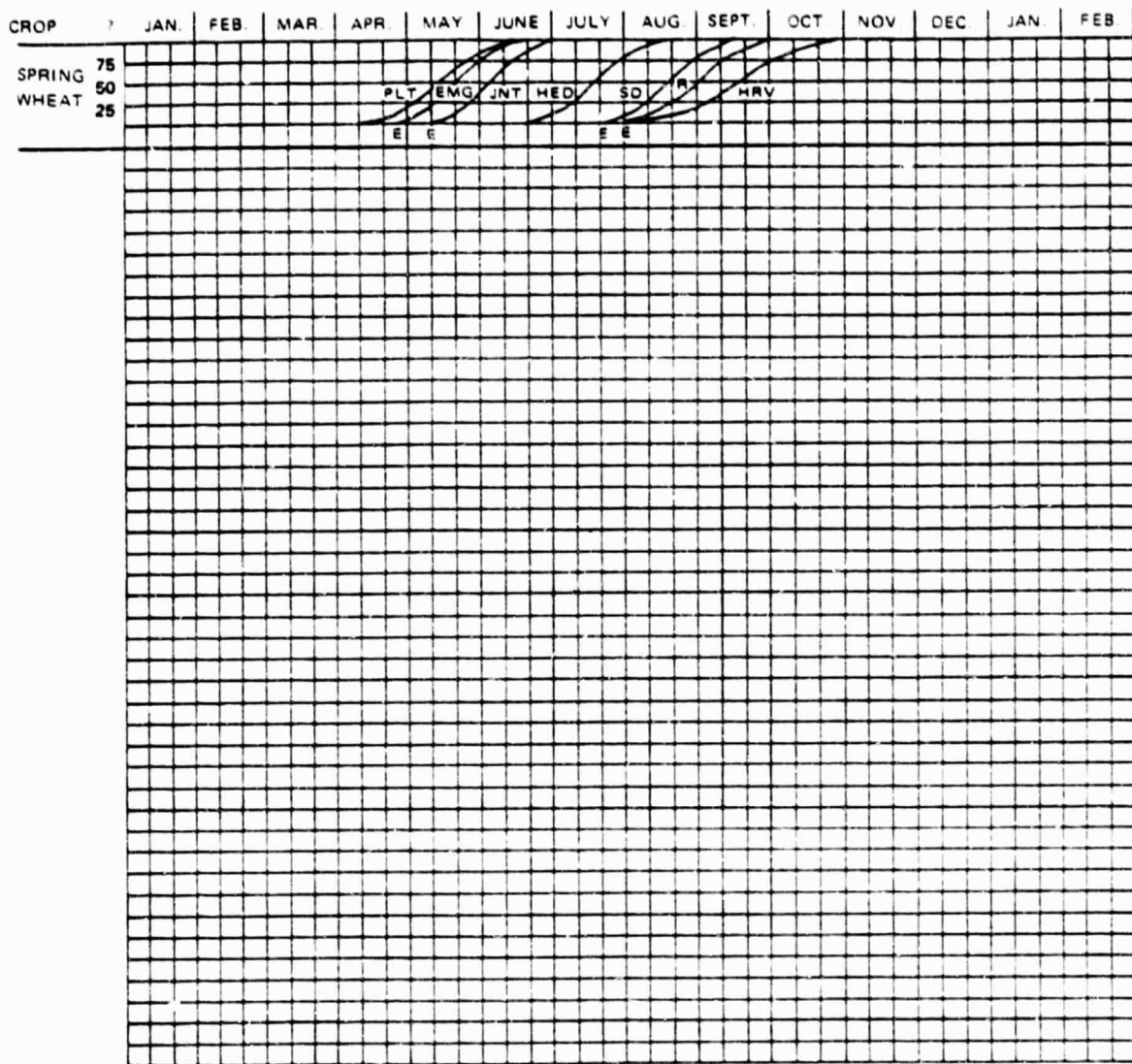
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 5. SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

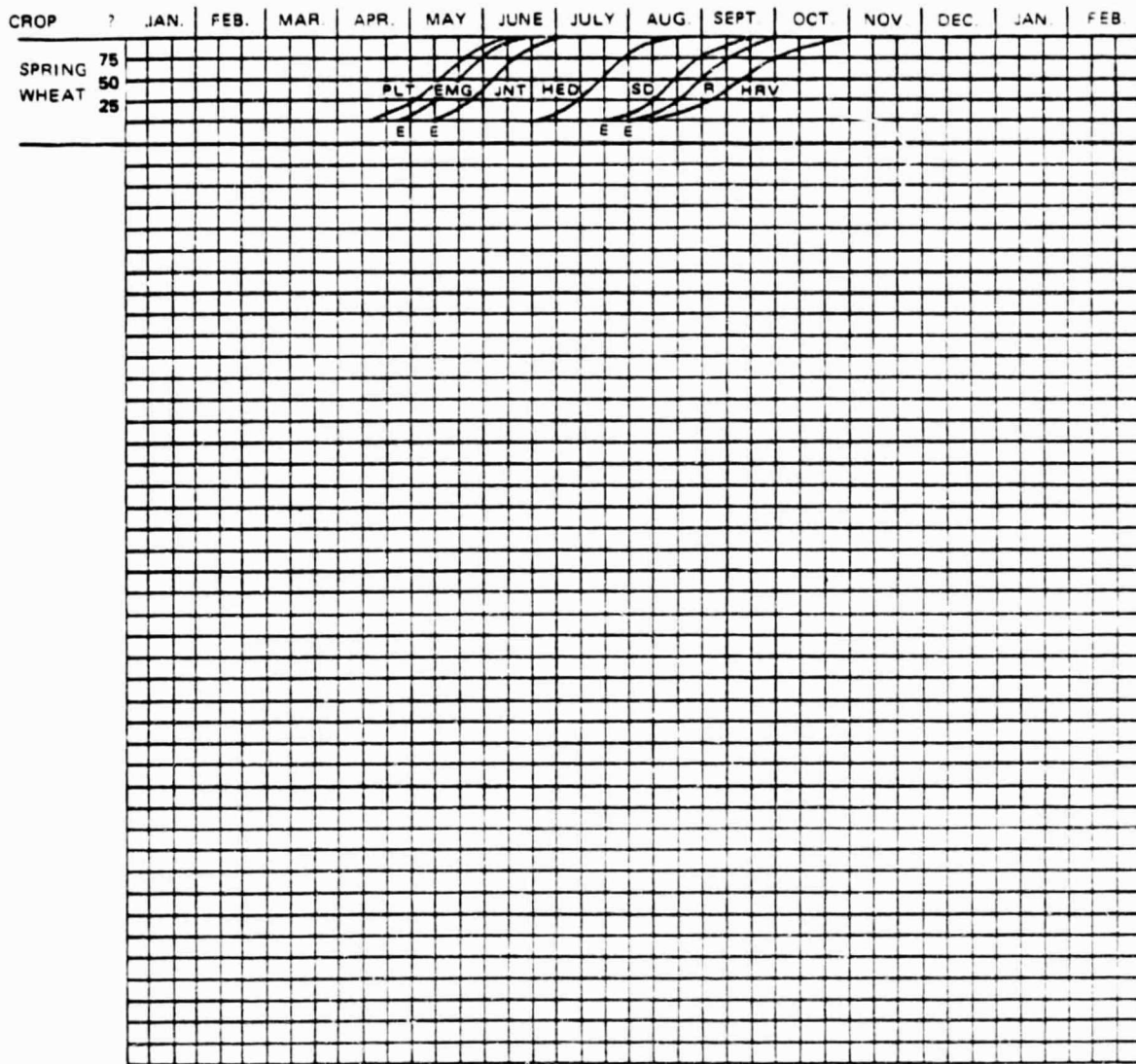
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 6. SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SASKATCHEWAN AREA 7: SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS

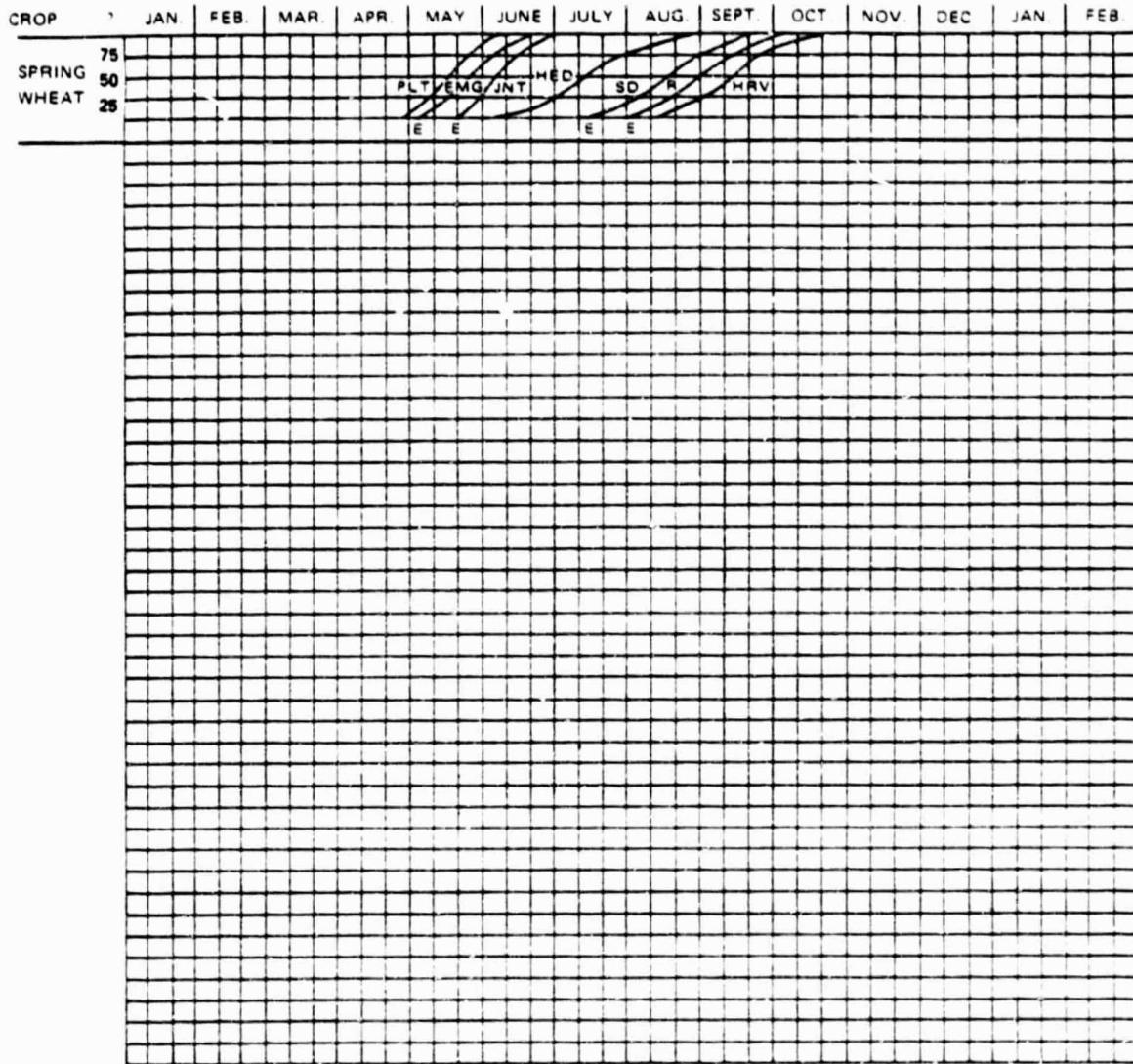


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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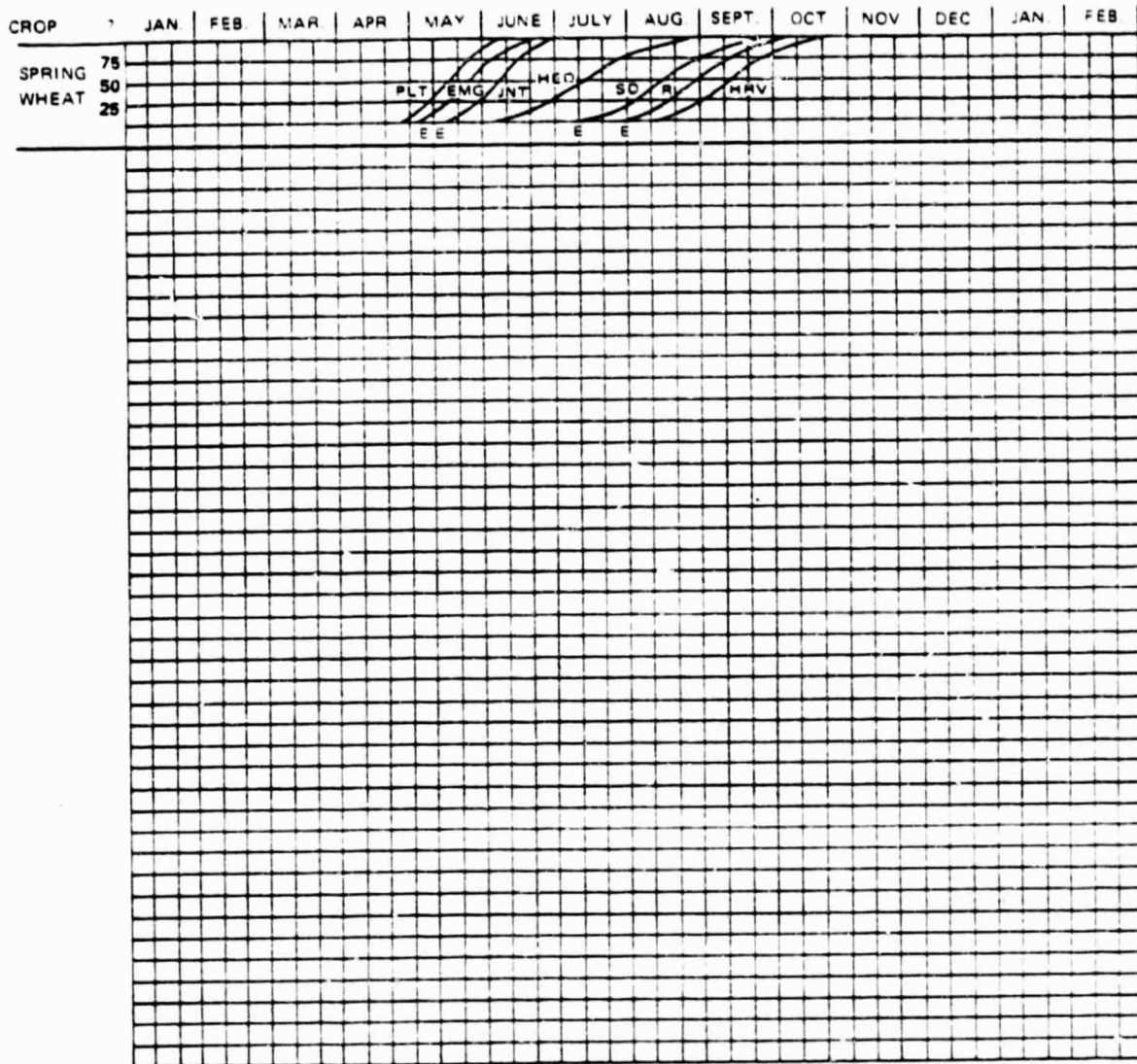
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 SASKATCHEWAN AREA 8 SEVERAL YEARS AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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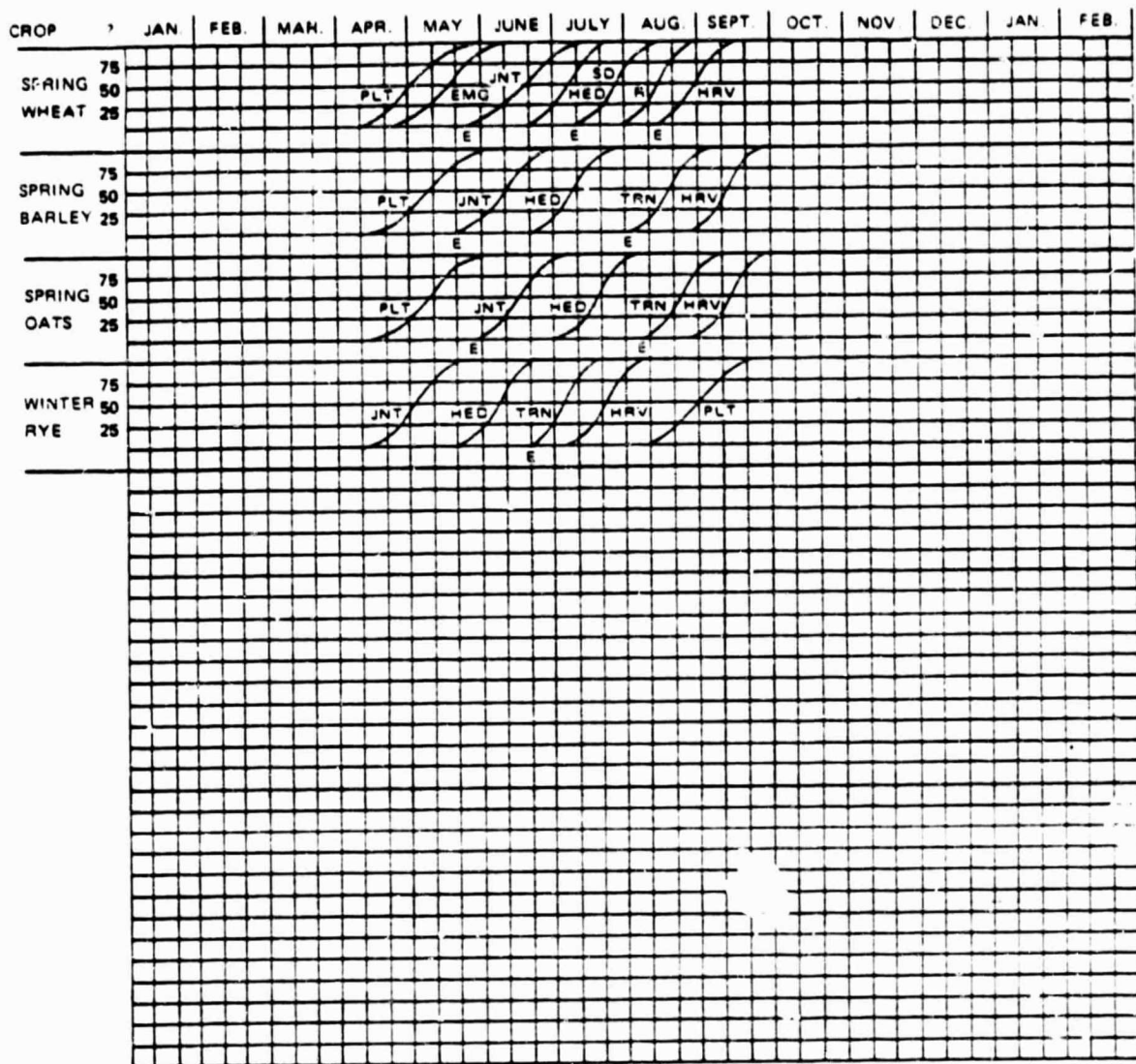


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning



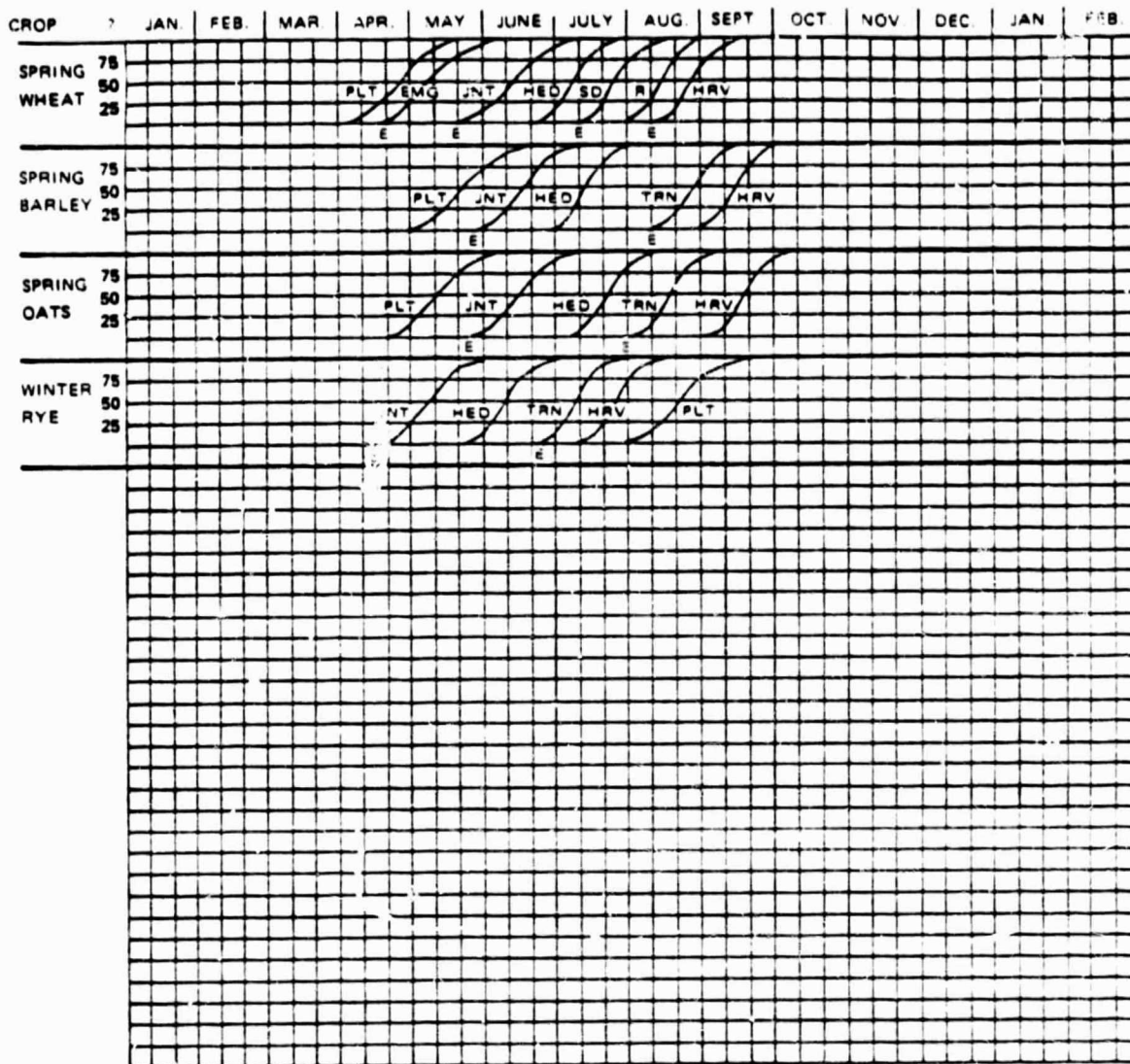
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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LEGEND

- E Under stage name indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

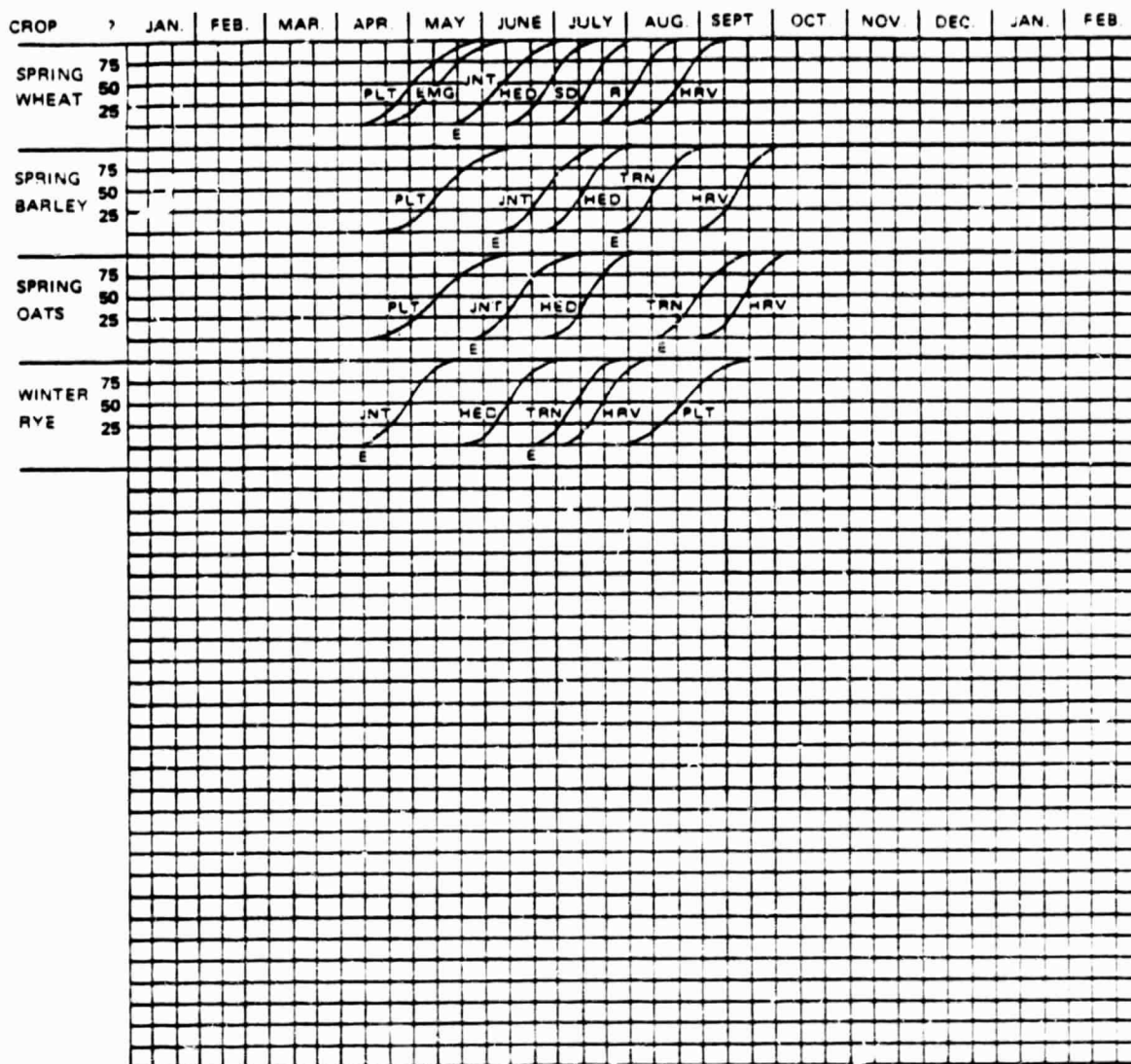
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 SCOTT, SASKATCHEWAN, CANADA



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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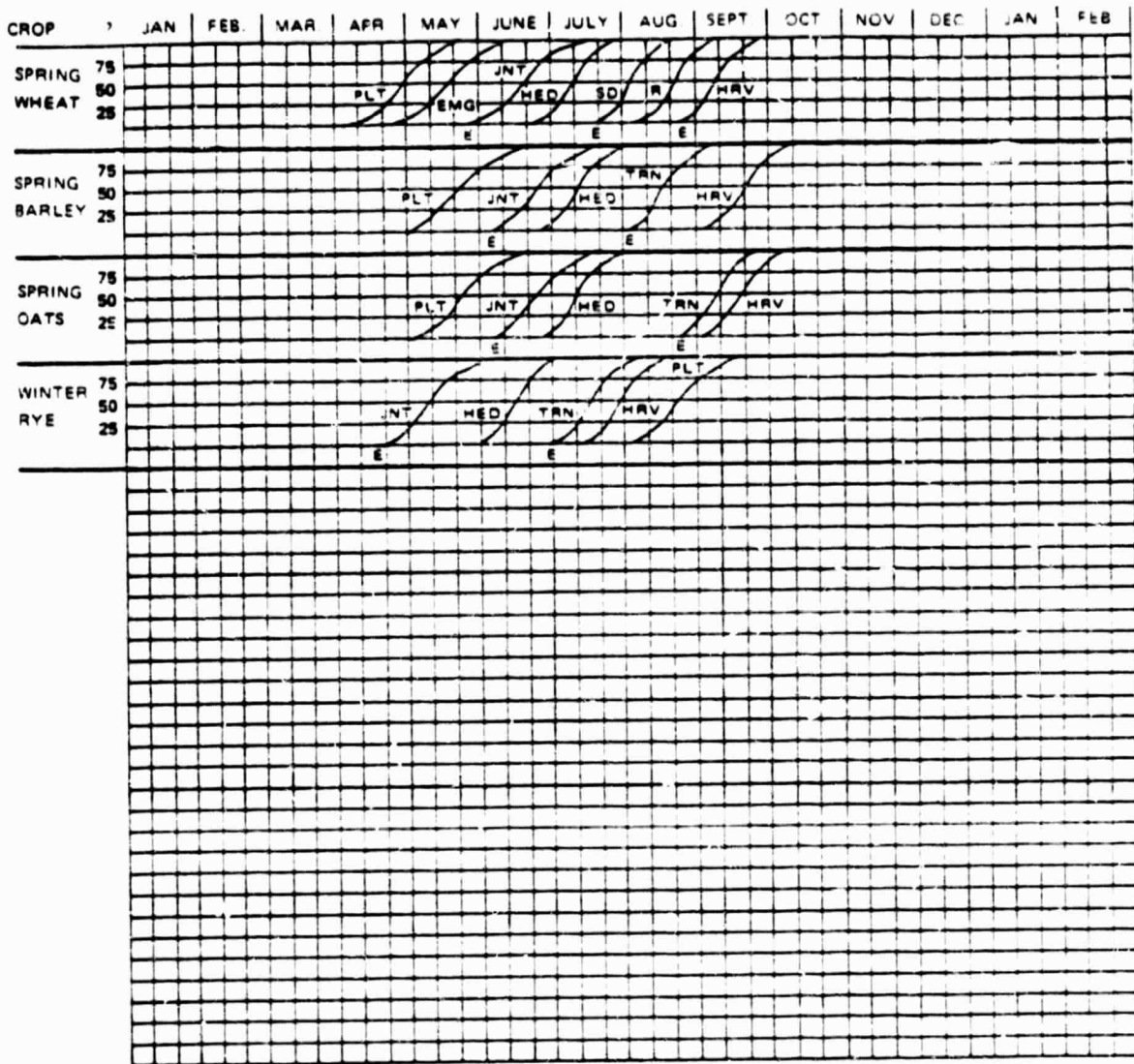


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

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CROP CALENDARS PLOTTED 05/28/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 MELFORT, SASKATCHEWAN, CANADA

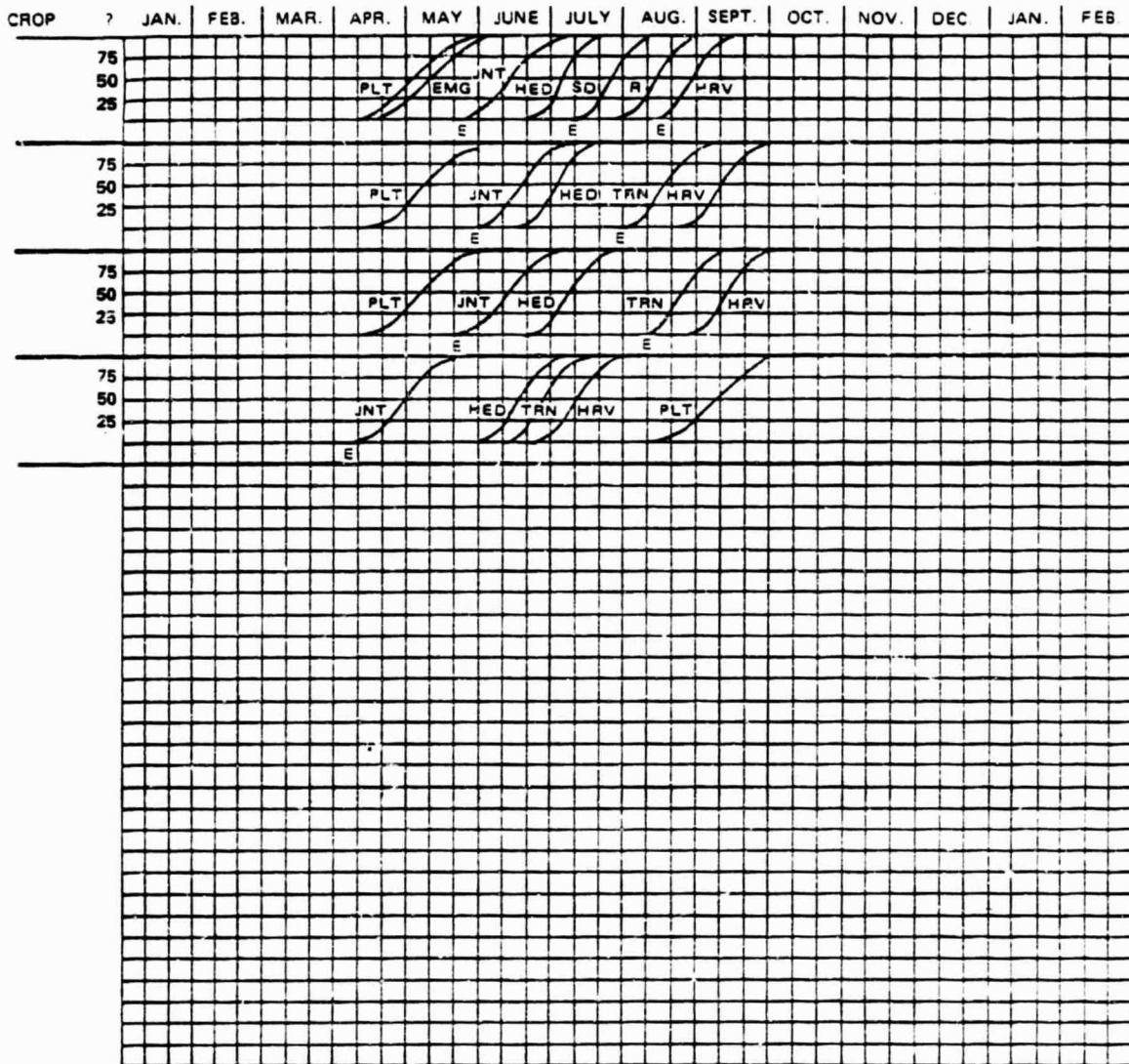


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

23

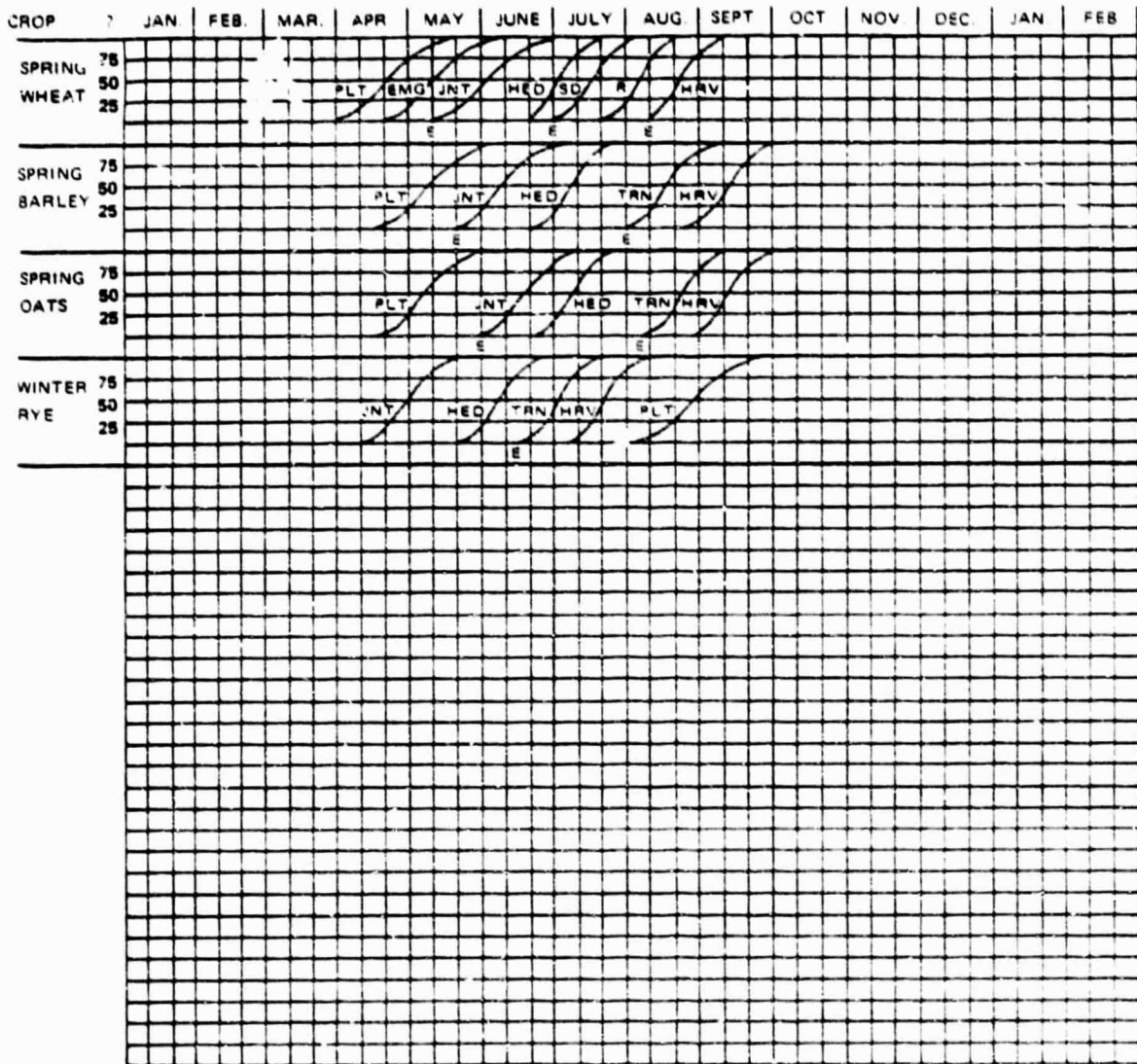
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LEGEND

- E Under stage name, indicates rough estimate of date
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- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

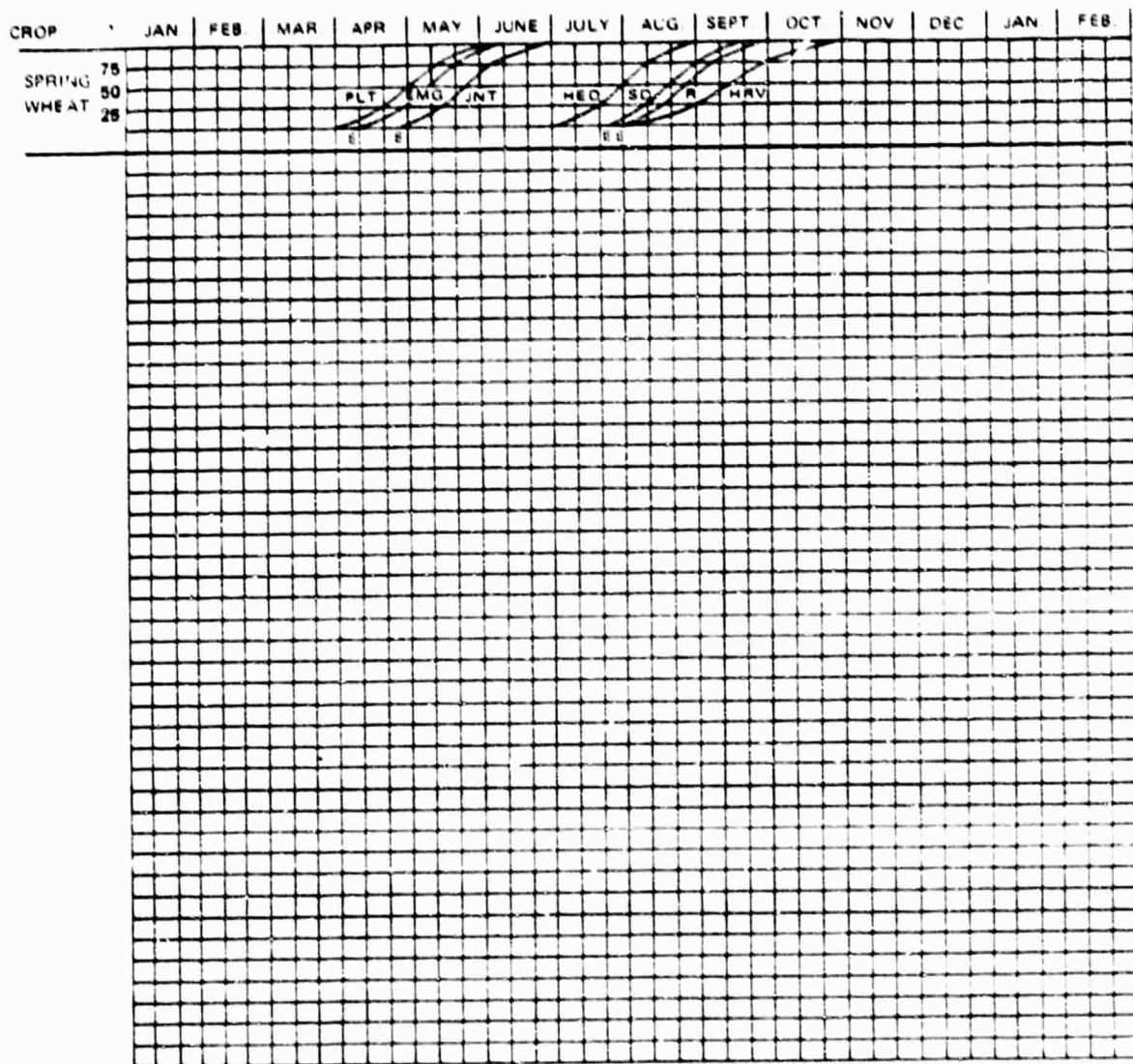
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 REGINA, SASKATCHEWAN, CANADA



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

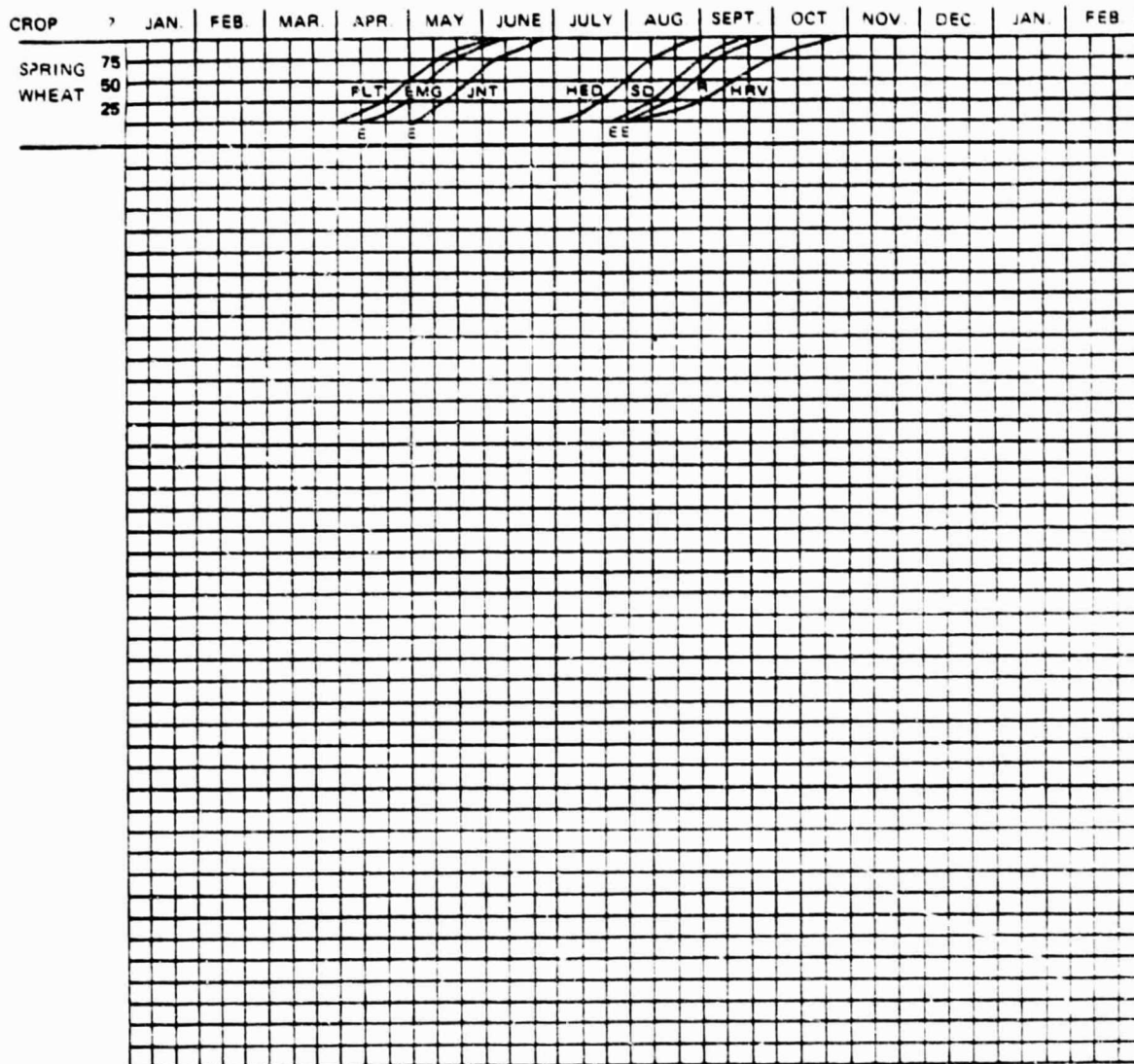
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 MANITOBA AREA 1 - AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

CROP CALENDARS PLOTTED 05/15/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
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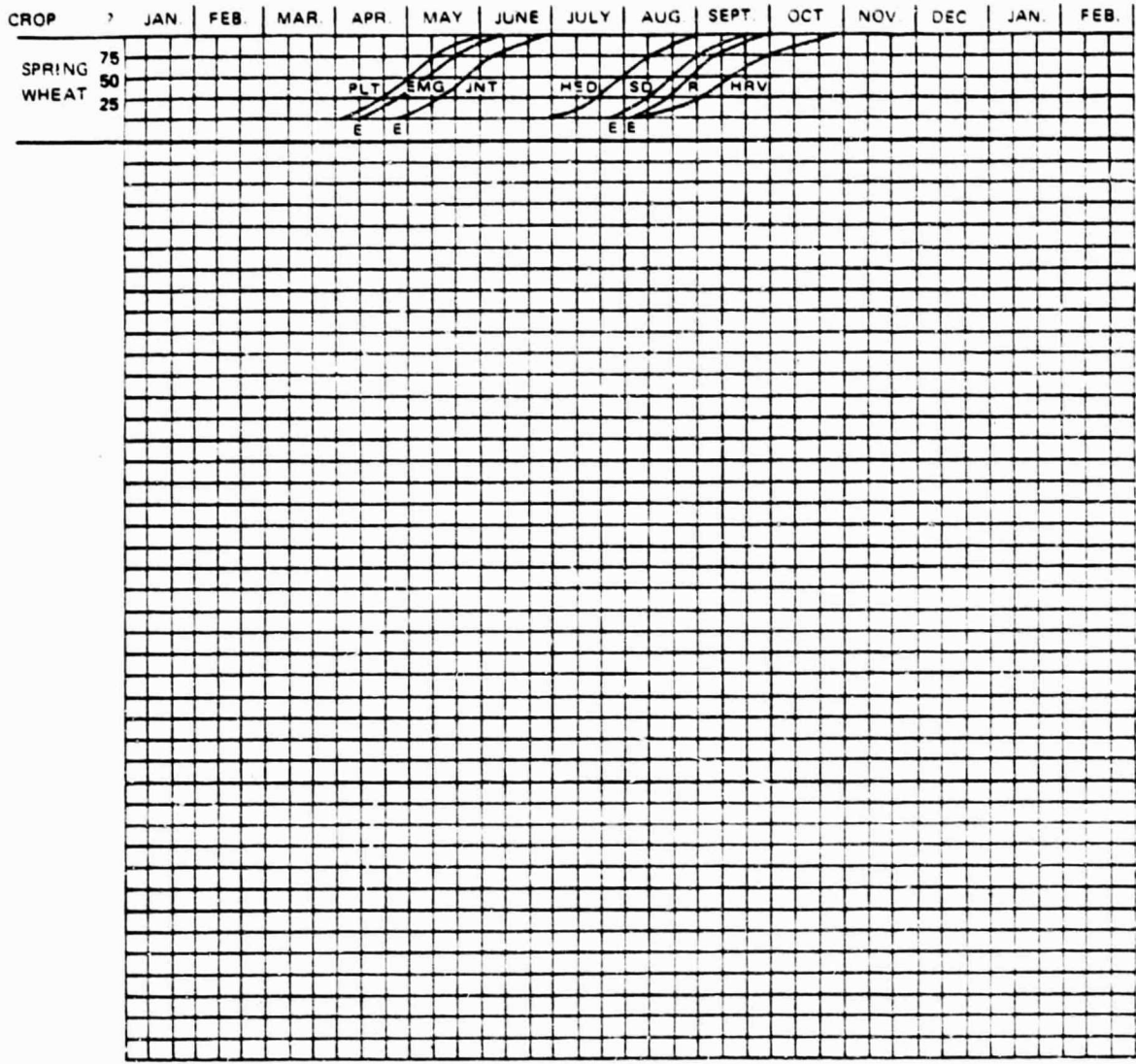


LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning



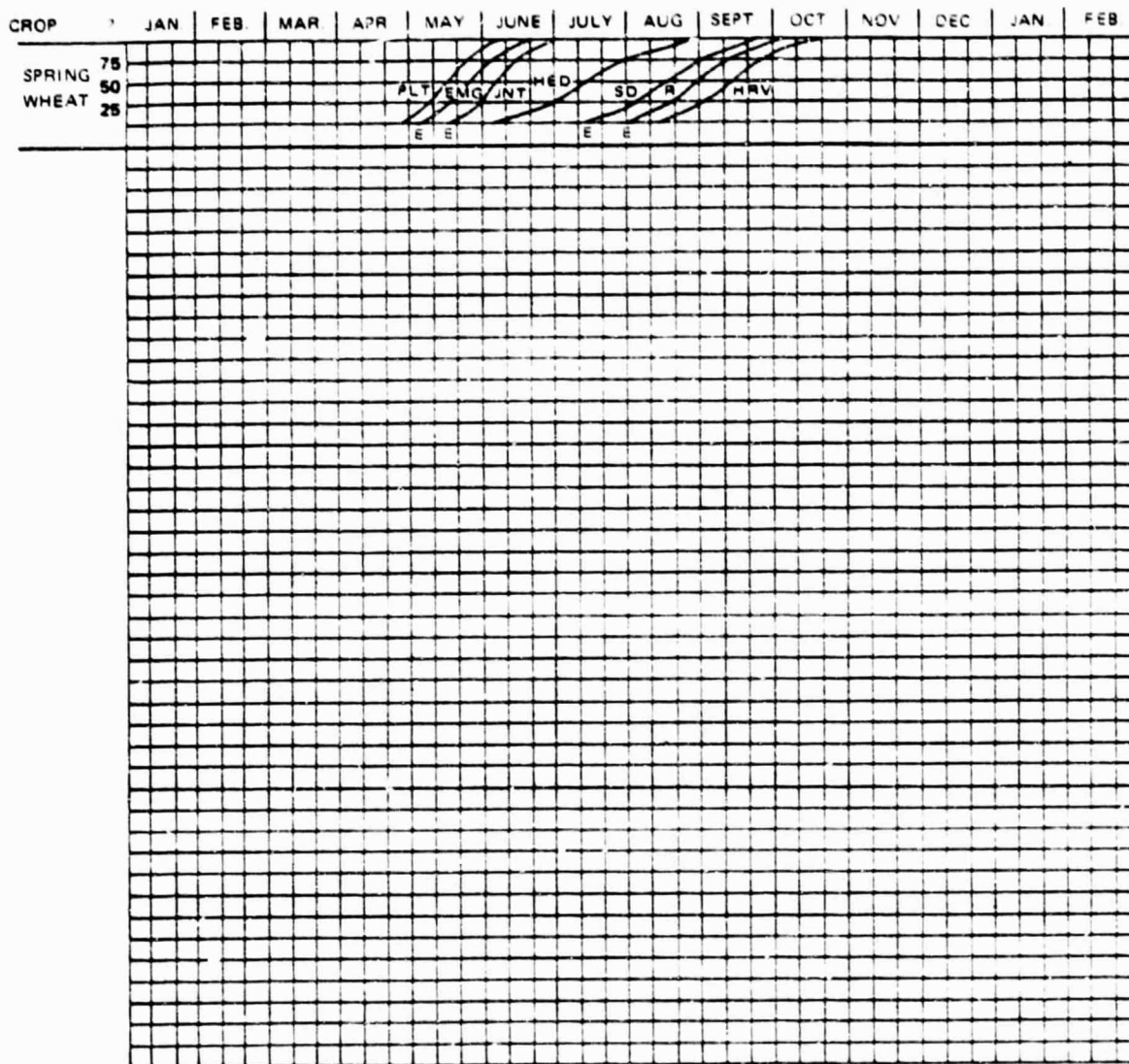
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 MANITOBA AREA 3: AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name, indicates rough estimate of date
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- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

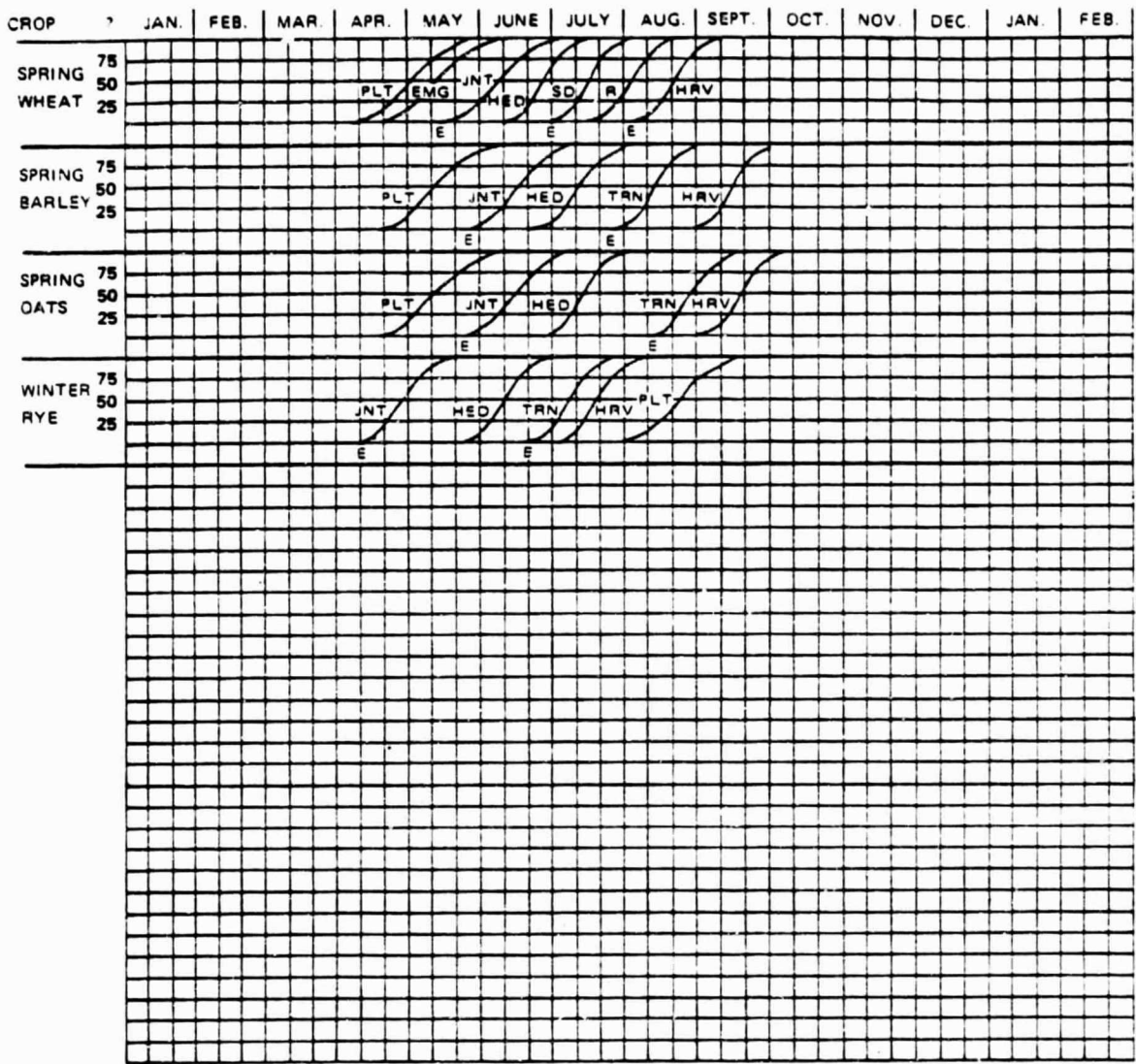
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 MANITOBA AREA 4 AVERAGE CROP CALENDAR FROM 1973 LETTER OF W. L. PORTEOUS



LEGEND

- E Under stage name indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

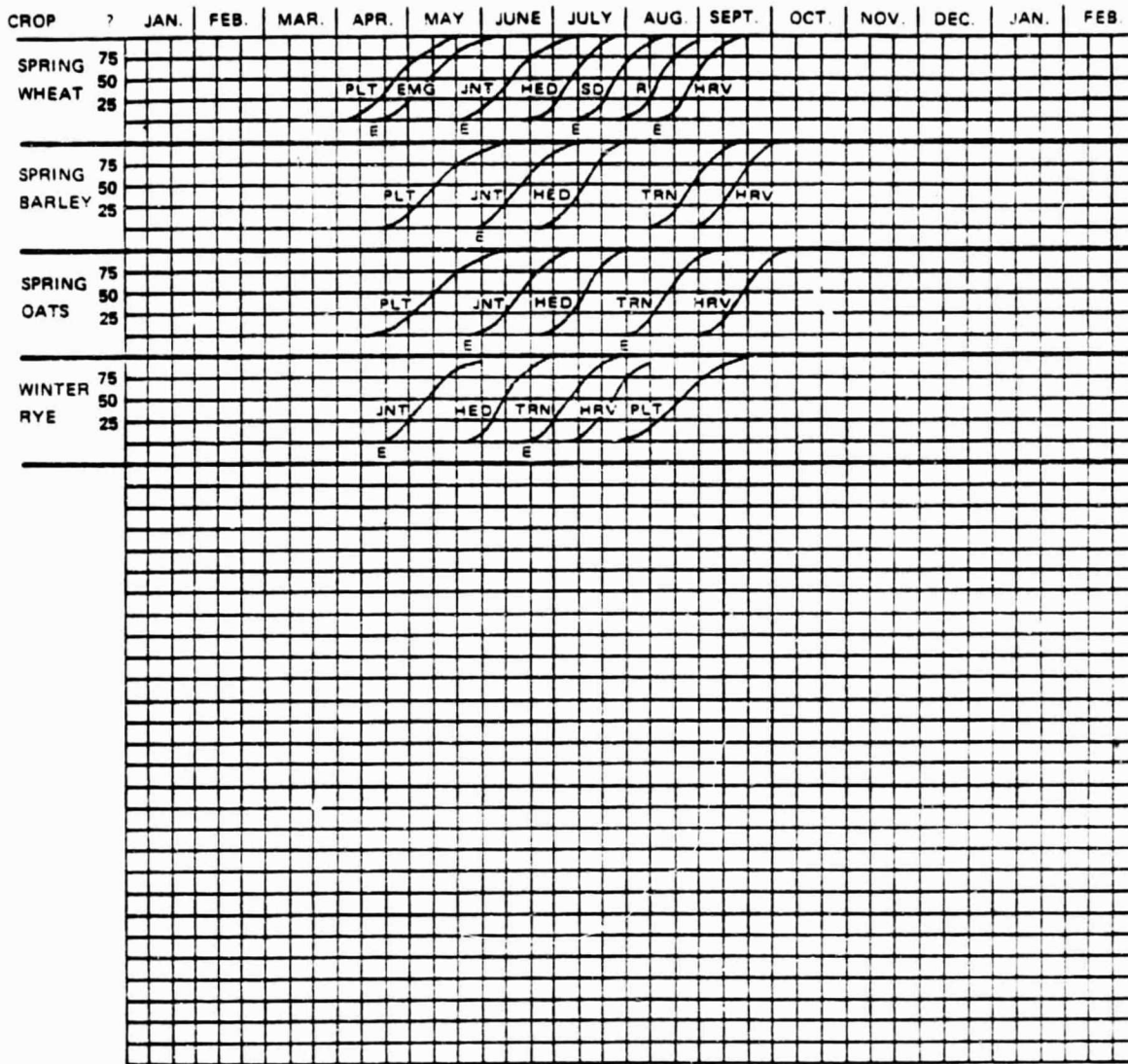
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 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 BRANDON, MANITOBA, CANADA (SASKATOON, SASKATCHEWAN DATA)



- LEGEND
- E Under stage name, indicates rough estimate of date
  - EMG Emergence
  - HED Heading
  - HRV Harvest
  - JNT Jointing
  - PLT Planting
  - R Ripe
  - SD Soft dough
  - TRN Turning

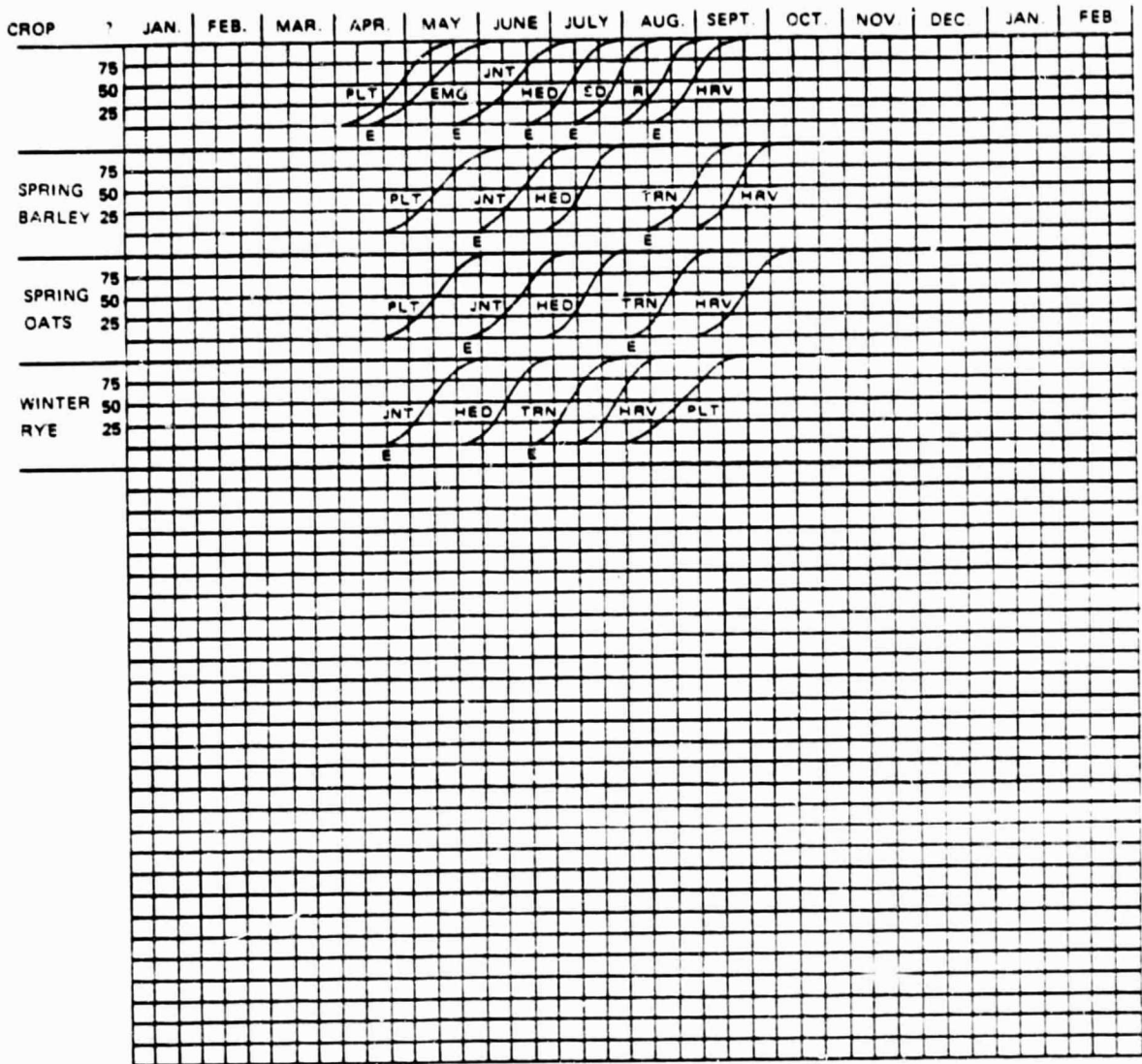
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 OF POOR QUALITY

CROP CALENDARS PLOTTED 05/28/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 MORDEN, MANITOBA, CANADA (SCOTT, SASKATCHEWAN DATA)



- LEGEND
- E Under stage name, indicates rough estimate of date
  - EMG Emergence
  - HED Heading
  - HRV Harvest
  - JNT Jointing
  - PLT Planting
  - R Ripe
  - SD Soft dough
  - TRN Turning

CROP CALENDARS PLOTTED 05/28/76  
 PERCENT OF AREA IN DEVELOPMENT STAGE BY SPECIFIED DATE FOR  
 WINNEPEG, MANITOBA, CANADA (SCOTT, SASKATCHEWAN DATA)



LEGEND

- E Under stage name, indicates rough estimate of date
- EMG Emergence
- HED Heading
- HRV Harvest
- JNT Jointing
- PLT Planting
- R Ripe
- SD Soft dough
- TRN Turning

APPENDIX B  
SIMULATED DAILY TEMPERATURES

SIMULATED DAILY TEMPERATURES FOR: MANITOBA: NORTHERN  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8289 0.0000 0.8186 0.0001

T-MAX: 7.5 13.6 24.2 25.3 31.7 48.2 77.4 75.2 63.9 51.0 29.7 15.3  
 T-MIN: -11.0 -7.4 5.3 25.7 33.1 48.6 54.7 52.0 42.1 32.2 14.7 -1.8

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	11	11	1	11	11	1	11	11	1	11	11	1	11	11	1	11	11			
2	11	11	2	11	11	2	11	11	2	11	11	2	11	11	2	11	11			
3	11	11	3	11	11	3	11	11	3	11	11	3	11	11	3	11	11			
4	11	11	4	11	11	4	11	11	4	11	11	4	11	11	4	11	11			
5	11	11	5	11	11	5	11	11	5	11	11	5	11	11	5	11	11			
6	11	11	6	11	11	6	11	11	6	11	11	6	11	11	6	11	11			
7	11	11	7	11	11	7	11	11	7	11	11	7	11	11	7	11	11			
8	11	11	8	11	11	8	11	11	8	11	11	8	11	11	8	11	11			
9	11	11	9	11	11	9	11	11	9	11	11	9	11	11	9	11	11			
10	11	11	10	11	11	10	11	11	10	11	11	10	11	11	10	11	11			
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11			
12	11	11	12	11	11	12	11	11	12	11	11	12	11	11	12	11	11			
13	11	11	13	11	11	13	11	11	13	11	11	13	11	11	13	11	11			
14	11	11	14	11	11	14	11	11	14	11	11	14	11	11	14	11	11			
15	11	11	15	11	11	15	11	11	15	11	11	15	11	11	15	11	11			
16	11	11	16	11	11	16	11	11	16	11	11	16	11	11	16	11	11			
17	11	11	17	11	11	17	11	11	17	11	11	17	11	11	17	11	11			
18	11	11	18	11	11	18	11	11	18	11	11	18	11	11	18	11	11			
19	11	11	19	11	11	19	11	11	19	11	11	19	11	11	19	11	11			
20	11	11	20	11	11	20	11	11	20	11	11	20	11	11	20	11	11			
21	11	11	21	11	11	21	11	11	21	11	11	21	11	11	21	11	11			
22	11	11	22	11	11	22	11	11	22	11	11	22	11	11	22	11	11			
23	11	11	23	11	11	23	11	11	23	11	11	23	11	11	23	11	11			
24	11	11	24	11	11	24	11	11	24	11	11	24	11	11	24	11	11			
25	11	11	25	11	11	25	11	11	25	11	11	25	11	11	25	11	11			
26	11	11	26	11	11	26	11	11	26	11	11	26	11	11	26	11	11			
27	11	11	27	11	11	27	11	11	27	11	11	27	11	11	27	11	11			
28	11	11	28	11	11	28	11	11	28	11	11	28	11	11	28	11	11			
29	11	11	29	11	11	29	11	11	29	11	11	29	11	11	29	11	11			
30	11	11	30	11	11	30	11	11	30	11	11	30	11	11	30	11	11			
31	11	11	31	11	11	31	11	11	31	11	11	31	11	11	31	11	11			

ORIGINAL PAGE IS  
 OF POOR QUALITY

SIMULATED DAILY TEMPERATURES FOR: MANITOBA: SOUTHWEST  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8275 0.7090 0.8211 0.0001

T-MAX: 9.3 15.1 27.3 41.2 53.7 72.1 74.5 77.0 65.7 52.7 30.9 15.9  
 T-MIN: -0.4 -5.4 7.3 25.9 38.7 48.4 54.0 51.1 40.8 30.6 14.2 -0.8

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	10	10	1	10	10	1	10	10	1	10	10	1	10	10			
2	10	10	2	10	10	2	10	10	2	10	10	2	10	10			
3	10	10	3	10	10	3	10	10	3	10	10	3	10	10			
4	10	10	4	10	10	4	10	10	4	10	10	4	10	10			
5	10	10	5	10	10	5	10	10	5	10	10	5	10	10			
6	10	10	6	10	10	6	10	10	6	10	10	6	10	10			
7	10	10	7	10	10	7	10	10	7	10	10	7	10	10			
8	10	10	8	10	10	8	10	10	8	10	10	8	10	10			
9	10	10	9	10	10	9	10	10	9	10	10	9	10	10			
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10			
11	10	10	11	10	10	11	10	10	11	10	10	11	10	10			
12	10	10	12	10	10	12	10	10	12	10	10	12	10	10			
13	10	10	13	10	10	13	10	10	13	10	10	13	10	10			
14	10	10	14	10	10	14	10	10	14	10	10	14	10	10			
15	10	10	15	10	10	15	10	10	15	10	10	15	10	10			
16	10	10	16	10	10	16	10	10	16	10	10	16	10	10			
17	10	10	17	10	10	17	10	10	17	10	10	17	10	10			
18	10	10	18	10	10	18	10	10	18	10	10	18	10	10			
19	10	10	19	10	10	19	10	10	19	10	10	19	10	10			
20	10	10	20	10	10	20	10	10	20	10	10	20	10	10			
21	10	10	21	10	10	21	10	10	21	10	10	21	10	10			
22	10	10	22	10	10	22	10	10	22	10	10	22	10	10			
23	10	10	23	10	10	23	10	10	23	10	10	23	10	10			
24	10	10	24	10	10	24	10	10	24	10	10	24	10	10			
25	10	10	25	10	10	25	10	10	25	10	10	25	10	10			
26	10	10	26	10	10	26	10	10	26	10	10	26	10	10			
27	10	10	27	10	10	27	10	10	27	10	10	27	10	10			
28	10	10	28	10	10	28	10	10	28	10	10	28	10	10			
29	10	10	29	10	10	29	10	10	29	10	10	29	10	10			
30	10	10	30	10	10	30	10	10	30	10	10	30	10	10			
31	10	10	31	10	10	31	10	10	31	10	10	31	10	10			



SIMULATED DAILY TEMPERATURES FOR: PARITONAH SOUTH CENT  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8279 0.0000 0.8202 0.0001

T-MAX: 9.5 15.7 28.0 47.9 53.7 72.5 79.5 77.8 59.7 53.0 41.1 17.1  
 T-MIN: -9.3 -5.2 7.3 27.0 38.3 41.9 54.5 51.9 41.5 31.3 14.7 0.8

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	9.5	-9.3	1	15.7	-5.2	1	28.0	7.3	1	47.9	27.0	1	53.7	38.3	1	72.5	41.9
2	15.7	-5.2	2	28.0	7.3	2	47.9	27.0	2	53.7	38.3	2	72.5	41.9	2	79.5	54.5
3	28.0	7.3	3	47.9	27.0	3	53.7	38.3	3	72.5	41.9	3	79.5	54.5	3	77.8	51.9
4	47.9	27.0	4	53.7	38.3	4	72.5	41.9	4	79.5	54.5	4	77.8	51.9	4	59.7	41.5
5	53.7	38.3	5	72.5	41.9	5	79.5	54.5	5	77.8	51.9	5	59.7	41.5	5	53.0	31.3
6	72.5	41.9	6	79.5	54.5	6	77.8	51.9	6	59.7	41.5	6	53.0	31.3	6	41.1	14.7
7	79.5	54.5	7	77.8	51.9	7	59.7	41.5	7	53.0	31.3	7	41.1	14.7	7	17.1	0.8
8	77.8	51.9	8	59.7	41.5	8	53.0	31.3	8	41.1	14.7	8	17.1	0.8	8	9.5	-9.3
9	59.7	41.5	9	53.0	31.3	9	41.1	14.7	9	17.1	0.8	9	9.5	-9.3	9	15.7	-5.2
10	53.0	31.3	10	41.1	14.7	10	17.1	0.8	10	9.5	-9.3	10	15.7	-5.2	10	28.0	7.3
11	41.1	14.7	11	17.1	0.8	11	9.5	-9.3	11	15.7	-5.2	11	28.0	7.3	11	47.9	27.0
12	17.1	0.8	12	9.5	-9.3	12	15.7	-5.2	12	28.0	7.3	12	47.9	27.0	12	53.7	38.3
13	9.5	-9.3	13	15.7	-5.2	13	28.0	7.3	13	47.9	27.0	13	53.7	38.3	13	72.5	41.9
14	15.7	-5.2	14	28.0	7.3	14	47.9	27.0	14	53.7	38.3	14	72.5	41.9	14	79.5	54.5
15	28.0	7.3	15	47.9	27.0	15	53.7	38.3	15	72.5	41.9	15	79.5	54.5	15	77.8	51.9
16	47.9	27.0	16	53.7	38.3	16	72.5	41.9	16	79.5	54.5	16	77.8	51.9	16	59.7	41.5
17	53.7	38.3	17	72.5	41.9	17	79.5	54.5	17	77.8	51.9	17	59.7	41.5	17	53.0	31.3
18	72.5	41.9	18	79.5	54.5	18	77.8	51.9	18	59.7	41.5	18	53.0	31.3	18	41.1	14.7
19	79.5	54.5	19	77.8	51.9	19	59.7	41.5	19	53.0	31.3	19	41.1	14.7	19	17.1	0.8
20	77.8	51.9	20	59.7	41.5	20	53.0	31.3	20	41.1	14.7	20	17.1	0.8	20	9.5	-9.3
21	59.7	41.5	21	53.0	31.3	21	41.1	14.7	21	17.1	0.8	21	9.5	-9.3	21	15.7	-5.2
22	53.0	31.3	22	41.1	14.7	22	17.1	0.8	22	9.5	-9.3	22	15.7	-5.2	22	28.0	7.3
23	41.1	14.7	23	17.1	0.8	23	9.5	-9.3	23	15.7	-5.2	23	28.0	7.3	23	47.9	27.0
24	17.1	0.8	24	9.5	-9.3	24	15.7	-5.2	24	28.0	7.3	24	47.9	27.0	24	53.7	38.3
25	9.5	-9.3	25	15.7	-5.2	25	28.0	7.3	25	47.9	27.0	25	53.7	38.3	25	72.5	41.9
26	15.7	-5.2	26	28.0	7.3	26	47.9	27.0	26	53.7	38.3	26	72.5	41.9	26	79.5	54.5
27	28.0	7.3	27	47.9	27.0	27	53.7	38.3	27	72.5	41.9	27	79.5	54.5	27	77.8	51.9
28	47.9	27.0	28	53.7	38.3	28	72.5	41.9	28	79.5	54.5	28	77.8	51.9	28	59.7	41.5
29	53.7	38.3	29	72.5	41.9	29	79.5	54.5	29	77.8	51.9	29	59.7	41.5	29	53.0	31.3
30	72.5	41.9	30	79.5	54.5	30	77.8	51.9	30	59.7	41.5	30	53.0	31.3	30	41.1	14.7
31	79.5	54.5	31	77.8	51.9	31	59.7	41.5	31	53.0	31.3	31	41.1	14.7	31	17.1	0.8
32	77.8	51.9	32	59.7	41.5	32	53.0	31.3	32	41.1	14.7	32	17.1	0.8	32	9.5	-9.3
33	59.7	41.5	33	53.0	31.3	33	41.1	14.7	33	17.1	0.8	33	9.5	-9.3	33	15.7	-5.2
34	53.0	31.3	34	41.1	14.7	34	17.1	0.8	34	9.5	-9.3	34	15.7	-5.2	34	28.0	7.3
35	41.1	14.7	35	17.1	0.8	35	9.5	-9.3	35	15.7	-5.2	35	28.0	7.3	35	47.9	27.0
36	17.1	0.8	36	9.5	-9.3	36	15.7	-5.2	36	28.0	7.3	36	47.9	27.0	36	53.7	38.3
37	9.5	-9.3	37	15.7	-5.2	37	28.0	7.3	37	47.9	27.0	37	53.7	38.3	37	72.5	41.9
38	15.7	-5.2	38	28.0	7.3	38	47.9	27.0	38	53.7	38.3	38	72.5	41.9	38	79.5	54.5
39	28.0	7.3	39	47.9	27.0	39	53.7	38.3	39	72.5	41.9	39	79.5	54.5	39	77.8	51.9
40	47.9	27.0	40	53.7	38.3	40	72.5	41.9	40	79.5	54.5	40	77.8	51.9	40	59.7	41.5
41	53.7	38.3	41	72.5	41.9	41	79.5	54.5	41	77.8	51.9	41	59.7	41.5	41	53.0	31.3
42	72.5	41.9	42	79.5	54.5	42	77.8	51.9	42	59.7	41.5	42	53.0	31.3	42	41.1	14.7
43	79.5	54.5	43	77.8	51.9	43	59.7	41.5	43	53.0	31.3	43	41.1	14.7	43	17.1	0.8
44	77.8	51.9	44	59.7	41.5	44	53.0	31.3	44	41.1	14.7	44	17.1	0.8	44	9.5	-9.3
45	59.7	41.5	45	53.0	31.3	45	41.1	14.7	45	17.1	0.8	45	9.5	-9.3	45	15.7	-5.2
46	53.0	31.3	46	41.1	14.7	46	17.1	0.8	46	9.5	-9.3	46	15.7	-5.2	46	28.0	7.3
47	41.1	14.7	47	17.1	0.8	47	9.5	-9.3	47	15.7	-5.2	47	28.0	7.3	47	47.9	27.0
48	17.1	0.8	48	9.5	-9.3	48	15.7	-5.2	48	28.0	7.3	48	47.9	27.0	48	53.7	38.3
49	9.5	-9.3	49	15.7	-5.2	49	28.0	7.3	49	47.9	27.0	49	53.7	38.3	49	72.5	41.9
50	15.7	-5.2	50	28.0	7.3	50	47.9	27.0	50	53.7	38.3	50	72.5	41.9	50	79.5	54.5
51	28.0	7.3	51	47.9	27.0	51	53.7	38.3	51	72.5	41.9	51	79.5	54.5	51	77.8	51.9
52	47.9	27.0	52	53.7	38.3	52	72.5	41.9	52	79.5	54.5	52	77.8	51.9	52	59.7	41.5
53	53.7	38.3	53	72.5	41.9	53	79.5	54.5	53	77.8	51.9	53	59.7	41.5	53	53.0	31.3
54	72.5	41.9	54	79.5	54.5	54	77.8	51.9	54	59.7	41.5	54	53.0	31.3	54	41.1	14.7
55	79.5	54.5	55	77.8	51.9	55	59.7	41.5	55	53.0	31.3	55	41.1	14.7	55	17.1	0.8
56	77.8	51.9	56	59.7	41.5	56	53.0	31.3	56	41.1	14.7	56	17.1	0.8	56	9.5	-9.3
57	59.7	41.5	57	53.0	31.3	57	41.1	14.7	57	17.1	0.8	57	9.5	-9.3	57	15.7	-5.2
58	53.0	31.3	58	41.1	14.7	58	17.1	0.8	58	9.5	-9.3	58	15.7	-5.2	58	28.0	7.3
59	41.1	14.7	59	17.1	0.8	59	9.5	-9.3	59	15.7	-5.2	59	28.0	7.3	59	47.9	27.0
60	17.1	0.8	60	9.5	-9.3	60	15.7	-5.2	60	28.0	7.3	60	47.9	27.0	60	53.7	38.3
61	9.5	-9.3	61	15.7	-5.2	61	28.0	7.3	61	47.9	27.0	61	53.7	38.3	61	72.5	41.9
62	15.7	-5.2	62	28.0	7.3	62	47.9	27.0	62	53.7	38.3	62	72.5	41.9	62	79.5	54.5
63	28.0	7.3	63	47.9	27.0	63	53.7	38.3	63	72.5	41.9	63	79.5	54.5	63	77.8	51.9
64	47.9	27.0	64	53.7	38.3	64	72.5	41.9	64	79.5	54.5	64	77.8	51.9	64	59.7	41.5
65	53.7	38.3	65	72.5	41.9	65	79.5	54.5	65	77.8	51.9	65	59.7	41.5	65	53.0	31.3
66	72.5	41.9	66	79.5	54.5	66	77.8	51.9	66	59.7	41.5	66	53.0	31.3	66	41.1	14.7
67	79.5	54.5	67	77.8	51.9	67	59.7	41.5	67	53.0	31.3	67	41.1	14.7	67	17.1	0.8
68	77.8	51.9	68	59.7	41.5	68	53.0	31.3	68	41.1	14.7	68	17.1	0.8	68	9.5	-9.3
69	59.7	41.5	69	53.0	31.3	69	41.1	14.7	69	17.1	0.8	69	9.5	-9.3	69	15.7	-5.2
70	53.0	31.3	70	41.1	14.7	70	17.1	0.8	70	9.5	-9.3	70	15.7	-5.2	70	28.0	7.3
71	41.1	14.7	71	17.1	0.8	71	9.5	-9.3	71	15.7	-5.2	71	28.0	7.3	71	47.9	27.0
72	17.1	0.8	72	9.5	-9.3	72	15.7	-5.2	72	28.0	7.3	72	47.9	27.0	72	53.7	38.3
73	9.5	-9.3	73	15.7	-5.2	73	28.0	7.3	73	47.9	27.0	73	53.7	38.3	73	72.5	41.9
74	15.7	-5.2	74	28.0	7.3	74	47.9	27.0	74	53.7	38.3	74	72.5	41.9	74	79.5	54.5
75	28.0	7.3	75	47.9	27.0	75	53.7	38.3	75	72.5	41.9	75	79.5	54.5	75	77.8	51.9
76	47.9	27.0	76	53.7	38.3	76	72.5	41.9	76	79.5	54.5	76	77.8	51.9	76	59.7	41.5
77	53.7	38.3	77	72.5	41.9	77	79.5	54.5	77	77.8	51.9	77	59.7	41.5	77	53.0	31.3
78	72.5	41.9	78	79.5	54.5	78	77.8	51.9	78	59.7	41.5	78	53.0	31.3	78	41.1	14.7
79	79.5	54.5	79	77.8</													

SIMULATED DAILY TEMPERATURES FOR: AMBITON: SOUTHEAST  
 BASED UPON 1ST AND 2ND DECADES OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8293 0.0000 0.8175 0.0001

T-MAX: J 9.5 15.7 28.2 47.5 63.5 73.0 72.5 71.2 65.7 53.1 31.5 15.7  
 T-MIN: -9.9 -0.6 7.2 27.3 39.6 50.4 50.1 53.6 43.7 33.3 18.9 -0.4

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	U	U	1	U	U	1	U	U	1	U	U	1	U	U	1	U	U
2	U	U	2	U	U	2	U	U	2	U	U	2	U	U	2	U	U
3	U	U	3	U	U	3	U	U	3	U	U	3	U	U	3	U	U
4	U	U	4	U	U	4	U	U	4	U	U	4	U	U	4	U	U
5	U	U	5	U	U	5	U	U	5	U	U	5	U	U	5	U	U
6	U	U	6	U	U	6	U	U	6	U	U	6	U	U	6	U	U
7	U	U	7	U	U	7	U	U	7	U	U	7	U	U	7	U	U
8	U	U	8	U	U	8	U	U	8	U	U	8	U	U	8	U	U
9	U	U	9	U	U	9	U	U	9	U	U	9	U	U	9	U	U
10	U	U	10	U	U	10	U	U	10	U	U	10	U	U	10	U	U
11	U	U	11	U	U	11	U	U	11	U	U	11	U	U	11	U	U
12	U	U	12	U	U	12	U	U	12	U	U	12	U	U	12	U	U
13	U	U	13	U	U	13	U	U	13	U	U	13	U	U	13	U	U
14	U	U	14	U	U	14	U	U	14	U	U	14	U	U	14	U	U
15	U	U	15	U	U	15	U	U	15	U	U	15	U	U	15	U	U
16	U	U	16	U	U	16	U	U	16	U	U	16	U	U	16	U	U
17	U	U	17	U	U	17	U	U	17	U	U	17	U	U	17	U	U
18	U	U	18	U	U	18	U	U	18	U	U	18	U	U	18	U	U
19	U	U	19	U	U	19	U	U	19	U	U	19	U	U	19	U	U
20	U	U	20	U	U	20	U	U	20	U	U	20	U	U	20	U	U
21	U	U	21	U	U	21	U	U	21	U	U	21	U	U	21	U	U
22	U	U	22	U	U	22	U	U	22	U	U	22	U	U	22	U	U
23	U	U	23	U	U	23	U	U	23	U	U	23	U	U	23	U	U
24	U	U	24	U	U	24	U	U	24	U	U	24	U	U	24	U	U
25	U	U	25	U	U	25	U	U	25	U	U	25	U	U	25	U	U
26	U	U	26	U	U	26	U	U	26	U	U	26	U	U	26	U	U
27	U	U	27	U	U	27	U	U	27	U	U	27	U	U	27	U	U
28	U	U	28	U	U	28	U	U	28	U	U	28	U	U	28	U	U
29	U	U	29	U	U	29	U	U	29	U	U	29	U	U	29	U	U
30	U	U	30	U	U	30	U	U	30	U	U	30	U	U	30	U	U
31	U	U	31	U	U	31	U	U	31	U	U	31	U	U	31	U	U

SIMULATED DAILY TEMPERATURES FOR: SASKATCHEWAN: NORTH  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8241 0.0000 0.8123 0.0002

T-MAX: 7.5 14.0 26.6 46.9 63.3 70.2 76.3 73.4 62.6 50.0 28.0 14.0  
 T-MIN: -13.0 -7.8 3.7 24.5 36.5 44.2 49.5 46.4 37.2 27.5 10.9 -4.5

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	0	0	61	17	14	121	52	25	181	79	51	241	73	48	301	39	19			
2	0	0	17	18	14	122	52	25	182	79	51	242	72	48	302	39	19			
3	0	0	18	19	14	123	52	25	183	79	51	243	71	48	303	39	19			
4	0	0	19	19	14	124	52	25	184	79	51	244	71	48	304	39	19			
5	0	0	20	19	14	125	52	25	185	79	51	245	71	48	305	39	19			
6	0	0	21	19	14	126	52	25	186	79	51	246	71	48	306	39	19			
7	0	0	22	19	14	127	52	25	187	79	51	247	71	48	307	39	19			
8	0	0	23	19	14	128	52	25	188	79	51	248	71	48	308	39	19			
9	0	0	24	19	14	129	52	25	189	79	51	249	71	48	309	39	19			
10	0	0	25	19	14	130	52	25	190	79	51	250	71	48	310	39	19			
11	0	0	26	19	14	131	52	25	191	79	51	251	71	48	311	39	19			
12	0	0	27	19	14	132	52	25	192	79	51	252	71	48	312	39	19			
13	0	0	28	19	14	133	52	25	193	79	51	253	71	48	313	39	19			
14	0	0	29	19	14	134	52	25	194	79	51	254	71	48	314	39	19			
15	0	0	30	19	14	135	52	25	195	79	51	255	71	48	315	39	19			
16	0	0	31	19	14	136	52	25	196	79	51	256	71	48	316	39	19			
17	0	0	32	19	14	137	52	25	197	79	51	257	71	48	317	39	19			
18	0	0	33	19	14	138	52	25	198	79	51	258	71	48	318	39	19			
19	0	0	34	19	14	139	52	25	199	79	51	259	71	48	319	39	19			
20	0	0	35	19	14	140	52	25	200	79	51	260	71	48	320	39	19			
21	0	0	36	19	14	141	52	25	201	79	51	261	71	48	321	39	19			
22	0	0	37	19	14	142	52	25	202	79	51	262	71	48	322	39	19			
23	0	0	38	19	14	143	52	25	203	79	51	263	71	48	323	39	19			
24	0	0	39	19	14	144	52	25	204	79	51	264	71	48	324	39	19			
25	0	0	40	19	14	145	52	25	205	79	51	265	71	48	325	39	19			
26	0	0	41	19	14	146	52	25	206	79	51	266	71	48	326	39	19			
27	0	0	42	19	14	147	52	25	207	79	51	267	71	48	327	39	19			
28	0	0	43	19	14	148	52	25	208	79	51	268	71	48	328	39	19			
29	0	0	44	19	14	149	52	25	209	79	51	269	71	48	329	39	19			
30	0	0	45	19	14	150	52	25	210	79	51	270	71	48	330	39	19			
31	0	0	46	19	14	151	52	25	211	79	51	271	71	48	331	39	19			
32	0	0	47	19	14	152	52	25	212	79	51	272	71	48	332	39	19			
33	0	0	48	19	14	153	52	25	213	79	51	273	71	48	333	39	19			
34	0	0	49	19	14	154	52	25	214	79	51	274	71	48	334	39	19			
35	0	0	50	19	14	155	52	25	215	79	51	275	71	48	335	39	19			
36	0	0	51	19	14	156	52	25	216	79	51	276	71	48	336	39	19			
37	0	0	52	19	14	157	52	25	217	79	51	277	71	48	337	39	19			
38	0	0	53	19	14	158	52	25	218	79	51	278	71	48	338	39	19			
39	0	0	54	19	14	159	52	25	219	79	51	279	71	48	339	39	19			
40	0	0	55	19	14	160	52	25	220	79	51	280	71	48	340	39	19			
41	0	0	56	19	14	161	52	25	221	79	51	281	71	48	341	39	19			
42	0	0	57	19	14	162	52	25	222	79	51	282	71	48	342	39	19			
43	0	0	58	19	14	163	52	25	223	79	51	283	71	48	343	39	19			
44	0	0	59	19	14	164	52	25	224	79	51	284	71	48	344	39	19			
45	0	0	60	19	14	165	52	25	225	79	51	285	71	48	345	39	19			
46	0	0	61	19	14	166	52	25	226	79	51	286	71	48	346	39	19			
47	0	0	62	19	14	167	52	25	227	79	51	287	71	48	347	39	19			
48	0	0	63	19	14	168	52	25	228	79	51	288	71	48	348	39	19			
49	0	0	64	19	14	169	52	25	229	79	51	289	71	48	349	39	19			
50	0	0	65	19	14	170	52	25	230	79	51	290	71	48	350	39	19			
51	0	0	66	19	14	171	52	25	231	79	51	291	71	48	351	39	19			
52	0	0	67	19	14	172	52	25	232	79	51	292	71	48	352	39	19			
53	0	0	68	19	14	173	52	25	233	79	51	293	71	48	353	39	19			
54	0	0	69	19	14	174	52	25	234	79	51	294	71	48	354	39	19			
55	0	0	70	19	14	175	52	25	235	79	51	295	71	48	355	39	19			
56	0	0	71	19	14	176	52	25	236	79	51	296	71	48	356	39	19			
57	0	0	72	19	14	177	52	25	237	79	51	297	71	48	357	39	19			
58	0	0	73	19	14	178	52	25	238	79	51	298	71	48	358	39	19			
59	0	0	74	19	14	179	52	25	239	79	51	299	71	48	359	39	19			
60	0	0	75	19	14	180	52	25	240	79	51	300	71	48	360	39	19			

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 OF POOR QUALITY



SIMULATED DAILY TEMPERATURES FOR: SASKATCHEWAN: WESTCE  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.8245 0.0000 0.8240 0.0001

T-MAX: 10<sup>J</sup> 16<sup>F</sup> 28<sup>M</sup> 44<sup>A</sup> 65<sup>M</sup> 72<sup>J</sup> 79<sup>J</sup> 77<sup>A</sup> 65<sup>S</sup> 53<sup>O</sup> 31<sup>N</sup> 18<sup>D</sup>  
 T-MIN: -8<sup>J</sup> -3<sup>F</sup> 8<sup>M</sup> 26<sup>A</sup> 37<sup>M</sup> 45<sup>J</sup> 51<sup>J</sup> 48<sup>A</sup> 38<sup>S</sup> 28<sup>O</sup> 12<sup>N</sup> -0<sup>D</sup>

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	11	3	1	11	3	1	11	3	1	11	3	1	11	3	1	11	3			
2	11	3	2	11	3	2	11	3	2	11	3	2	11	3	2	11	3			
3	11	3	3	11	3	3	11	3	3	11	3	3	11	3	3	11	3			
4	11	3	4	11	3	4	11	3	4	11	3	4	11	3	4	11	3			
5	11	3	5	11	3	5	11	3	5	11	3	5	11	3	5	11	3			
6	11	3	6	11	3	6	11	3	6	11	3	6	11	3	6	11	3			
7	11	3	7	11	3	7	11	3	7	11	3	7	11	3	7	11	3			
8	11	3	8	11	3	8	11	3	8	11	3	8	11	3	8	11	3			
9	11	3	9	11	3	9	11	3	9	11	3	9	11	3	9	11	3			
10	11	3	10	11	3	10	11	3	10	11	3	10	11	3	10	11	3			
11	11	3	11	11	3	11	11	3	11	11	3	11	11	3	11	11	3			
12	11	3	12	11	3	12	11	3	12	11	3	12	11	3	12	11	3			
13	11	3	13	11	3	13	11	3	13	11	3	13	11	3	13	11	3			
14	11	3	14	11	3	14	11	3	14	11	3	14	11	3	14	11	3			
15	11	3	15	11	3	15	11	3	15	11	3	15	11	3	15	11	3			
16	11	3	16	11	3	16	11	3	16	11	3	16	11	3	16	11	3			
17	11	3	17	11	3	17	11	3	17	11	3	17	11	3	17	11	3			
18	11	3	18	11	3	18	11	3	18	11	3	18	11	3	18	11	3			
19	11	3	19	11	3	19	11	3	19	11	3	19	11	3	19	11	3			
20	11	3	20	11	3	20	11	3	20	11	3	20	11	3	20	11	3			
21	11	3	21	11	3	21	11	3	21	11	3	21	11	3	21	11	3			
22	11	3	22	11	3	22	11	3	22	11	3	22	11	3	22	11	3			
23	11	3	23	11	3	23	11	3	23	11	3	23	11	3	23	11	3			
24	11	3	24	11	3	24	11	3	24	11	3	24	11	3	24	11	3			
25	11	3	25	11	3	25	11	3	25	11	3	25	11	3	25	11	3			
26	11	3	26	11	3	26	11	3	26	11	3	26	11	3	26	11	3			
27	11	3	27	11	3	27	11	3	27	11	3	27	11	3	27	11	3			
28	11	3	28	11	3	28	11	3	28	11	3	28	11	3	28	11	3			
29	11	3	29	11	3	29	11	3	29	11	3	29	11	3	29	11	3			
30	11	3	30	11	3	30	11	3	30	11	3	30	11	3	30	11	3			
31	11	3	31	11	3	31	11	3	31	11	3	31	11	3	31	11	3			
32	11	3	32	11	3	32	11	3	32	11	3	32	11	3	32	11	3			
33	11	3	33	11	3	33	11	3	33	11	3	33	11	3	33	11	3			
34	11	3	34	11	3	34	11	3	34	11	3	34	11	3	34	11	3			
35	11	3	35	11	3	35	11	3	35	11	3	35	11	3	35	11	3			
36	11	3	36	11	3	36	11	3	36	11	3	36	11	3	36	11	3			
37	11	3	37	11	3	37	11	3	37	11	3	37	11	3	37	11	3			
38	11	3	38	11	3	38	11	3	38	11	3	38	11	3	38	11	3			
39	11	3	39	11	3	39	11	3	39	11	3	39	11	3	39	11	3			
40	11	3	40	11	3	40	11	3	40	11	3	40	11	3	40	11	3			
41	11	3	41	11	3	41	11	3	41	11	3	41	11	3	41	11	3			
42	11	3	42	11	3	42	11	3	42	11	3	42	11	3	42	11	3			
43	11	3	43	11	3	43	11	3	43	11	3	43	11	3	43	11	3			
44	11	3	44	11	3	44	11	3	44	11	3	44	11	3	44	11	3			
45	11	3	45	11	3	45	11	3	45	11	3	45	11	3	45	11	3			
46	11	3	46	11	3	46	11	3	46	11	3	46	11	3	46	11	3			
47	11	3	47	11	3	47	11	3	47	11	3	47	11	3	47	11	3			
48	11	3	48	11	3	48	11	3	48	11	3	48	11	3	48	11	3			
49	11	3	49	11	3	49	11	3	49	11	3	49	11	3	49	11	3			
50	11	3	50	11	3	50	11	3	50	11	3	50	11	3	50	11	3			
51	11	3	51	11	3	51	11	3	51	11	3	51	11	3	51	11	3			
52	11	3	52	11	3	52	11	3	52	11	3	52	11	3	52	11	3			
53	11	3	53	11	3	53	11	3	53	11	3	53	11	3	53	11	3			
54	11	3	54	11	3	54	11	3	54	11	3	54	11	3	54	11	3			
55	11	3	55	11	3	55	11	3	55	11	3	55	11	3	55	11	3			
56	11	3	56	11	3	56	11	3	56	11	3	56	11	3	56	11	3			
57	11	3	57	11	3	57	11	3	57	11	3	57	11	3	57	11	3			
58	11	3	58	11	3	58	11	3	58	11	3	58	11	3	58	11	3			
59	11	3	59	11	3	59	11	3	59	11	3	59	11	3	59	11	3			
60	11	3	60	11	3	60	11	3	60	11	3	60	11	3	60	11	3			



SIMULATED DAILY TEMPERATURES FOR: SASKATCHEWAN: EASTCOE  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUAREDS: 0.8267 0.0000 0.8175 0.0001

T-MAX: J 7.7 F 14.0 M 25.7 A 46.2 M 62.8 J 70.5 J 77.4 A 75.0 S 63.7 O 51.1 N 28.6 D 14.9  
 T-MIN: -11.7 -7.2 4.6 25.0 37.4 46.0 51.6 48.6 39.2 29.1 12.2 -2.7

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	
1	10	-7	61	17	-3	121	51	26	141	79	53	241	74	50	301	40	21	361	11	-6	
2	10	-7	62	17	-3	122	51	26	142	79	53	242	74	50	302	40	22	362	11	-6	
3	10	-7	63	17	-3	123	51	26	143	79	53	243	74	50	303	40	23	363	11	-6	
4	10	-7	64	17	-3	124	51	26	144	79	53	244	74	50	304	40	24	364	10	-7	
5	10	-7	65	17	-3	125	51	26	145	79	53	245	74	50	305	40	25	365	10	-7	
6	10	-7	66	17	-3	126	51	26	146	79	53	246	74	50	306	40	26				
7	10	-7	67	17	-3	127	51	26	147	79	53	247	74	50	307	40	27				
8	10	-7	68	17	-3	128	51	26	148	79	53	248	74	50	308	40	28				
9	10	-7	69	17	-3	129	51	26	149	79	53	249	74	50	309	40	29				
10	10	-7	70	17	-3	130	51	26	150	79	53	250	74	50	310	40	30				
11	10	-7	71	17	-3	131	51	26	151	79	53	251	74	50	311	40	31				
12	10	-7	72	17	-3	132	51	26	152	79	53	252	74	50	312	40	32				
13	10	-7	73	17	-3	133	51	26	153	79	53	253	74	50	313	40	33				
14	10	-7	74	17	-3	134	51	26	154	79	53	254	74	50	314	40	34				
15	10	-7	75	17	-3	135	51	26	155	79	53	255	74	50	315	40	35				
16	10	-7	76	17	-3	136	51	26	156	79	53	256	74	50	316	40	36				
17	10	-7	77	17	-3	137	51	26	157	79	53	257	74	50	317	40	37				
18	10	-7	78	17	-3	138	51	26	158	79	53	258	74	50	318	40	38				
19	10	-7	79	17	-3	139	51	26	159	79	53	259	74	50	319	40	39				
20	10	-7	80	17	-3	140	51	26	160	79	53	260	74	50	320	40	40				
21	10	-7	81	17	-3	141	51	26	161	79	53	261	74	50	321	40	41				
22	10	-7	82	17	-3	142	51	26	162	79	53	262	74	50	322	40	42				
23	10	-7	83	17	-3	143	51	26	163	79	53	263	74	50	323	40	43				
24	10	-7	84	17	-3	144	51	26	164	79	53	264	74	50	324	40	44				
25	10	-7	85	17	-3	145	51	26	165	79	53	265	74	50	325	40	45				
26	10	-7	86	17	-3	146	51	26	166	79	53	266	74	50	326	40	46				
27	10	-7	87	17	-3	147	51	26	167	79	53	267	74	50	327	40	47				
28	10	-7	88	17	-3	148	51	26	168	79	53	268	74	50	328	40	48				
29	10	-7	89	17	-3	149	51	26	169	79	53	269	74	50	329	40	49				
30	10	-7	90	17	-3	150	51	26	170	79	53	270	74	50	330	40	50				
31	10	-7	91	17	-3	151	51	26	171	79	53	271	74	50	331	40	51				
32	10	-7	92	17	-3	152	51	26	172	79	53	272	74	50	332	40	52				
33	10	-7	93	17	-3	153	51	26	173	79	53	273	74	50	333	40	53				
34	10	-7	94	17	-3	154	51	26	174	79	53	274	74	50	334	40	54				
35	10	-7	95	17	-3	155	51	26	175	79	53	275	74	50	335	40	55				
36	10	-7	96	17	-3	156	51	26	176	79	53	276	74	50	336	40	56				
37	10	-7	97	17	-3	157	51	26	177	79	53	277	74	50	337	40	57				
38	10	-7	98	17	-3	158	51	26	178	79	53	278	74	50	338	40	58				
39	10	-7	99	17	-3	159	51	26	179	79	53	279	74	50	339	40	59				
40	10	-7	100	17	-3	160	51	26	180	79	53	280	74	50	340	40	60				

ORIGINAL PAGE  
 OF POOR QUALITY

SIMULATED DAILY TEMPERATURES FOR: SASKATCHEWAN: SOUTH  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY MEANS:

RESPECTIVE R-SQUARES: 0.4281 0.0000 0.6666 0.0001

T-MAX: 18.0 23.7 33.8 51.8 55.1 72.0 81.1 79.0 57.5 55.0 36.7 25.5  
 T-MIN: -2.6 1.0 12.2 27.1 37.4 45.5 50.2 47.3 38.5 1.4 14.9 4.6

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	18	-2	1	24	12	1	34	27	1	52	51	1	79	47	1	58	39
2	18	-2	2	24	12	2	34	27	2	52	51	2	79	47	2	58	39
3	18	-2	3	24	12	3	34	27	3	52	51	3	79	47	3	58	39
4	18	-2	4	24	12	4	34	27	4	52	51	4	79	47	4	58	39
5	18	-2	5	24	12	5	34	27	5	52	51	5	79	47	5	58	39
6	18	-2	6	24	12	6	34	27	6	52	51	6	79	47	6	58	39
7	18	-2	7	24	12	7	34	27	7	52	51	7	79	47	7	58	39
8	18	-2	8	24	12	8	34	27	8	52	51	8	79	47	8	58	39
9	18	-2	9	24	12	9	34	27	9	52	51	9	79	47	9	58	39
10	18	-2	10	24	12	10	34	27	10	52	51	10	79	47	10	58	39
11	18	-2	11	24	12	11	34	27	11	52	51	11	79	47	11	58	39
12	18	-2	12	24	12	12	34	27	12	52	51	12	79	47	12	58	39
13	18	-2	13	24	12	13	34	27	13	52	51	13	79	47	13	58	39
14	18	-2	14	24	12	14	34	27	14	52	51	14	79	47	14	58	39
15	18	-2	15	24	12	15	34	27	15	52	51	15	79	47	15	58	39
16	18	-2	16	24	12	16	34	27	16	52	51	16	79	47	16	58	39
17	18	-2	17	24	12	17	34	27	17	52	51	17	79	47	17	58	39
18	18	-2	18	24	12	18	34	27	18	52	51	18	79	47	18	58	39
19	18	-2	19	24	12	19	34	27	19	52	51	19	79	47	19	58	39
20	18	-2	20	24	12	20	34	27	20	52	51	20	79	47	20	58	39
21	18	-2	21	24	12	21	34	27	21	52	51	21	79	47	21	58	39
22	18	-2	22	24	12	22	34	27	22	52	51	22	79	47	22	58	39
23	18	-2	23	24	12	23	34	27	23	52	51	23	79	47	23	58	39
24	18	-2	24	24	12	24	34	27	24	52	51	24	79	47	24	58	39
25	18	-2	25	24	12	25	34	27	25	52	51	25	79	47	25	58	39
26	18	-2	26	24	12	26	34	27	26	52	51	26	79	47	26	58	39
27	18	-2	27	24	12	27	34	27	27	52	51	27	79	47	27	58	39
28	18	-2	28	24	12	28	34	27	28	52	51	28	79	47	28	58	39
29	18	-2	29	24	12	29	34	27	29	52	51	29	79	47	29	58	39
30	18	-2	30	24	12	30	34	27	30	52	51	30	79	47	30	58	39
31	18	-2	31	24	12	31	34	27	31	52	51	31	79	47	31	58	39
32	18	-2	32	24	12	32	34	27	32	52	51	32	79	47	32	58	39
33	18	-2	33	24	12	33	34	27	33	52	51	33	79	47	33	58	39
34	18	-2	34	24	12	34	34	27	34	52	51	34	79	47	34	58	39
35	18	-2	35	24	12	35	34	27	35	52	51	35	79	47	35	58	39
36	18	-2	36	24	12	36	34	27	36	52	51	36	79	47	36	58	39
37	18	-2	37	24	12	37	34	27	37	52	51	37	79	47	37	58	39
38	18	-2	38	24	12	38	34	27	38	52	51	38	79	47	38	58	39
39	18	-2	39	24	12	39	34	27	39	52	51	39	79	47	39	58	39
40	18	-2	40	24	12	40	34	27	40	52	51	40	79	47	40	58	39
41	18	-2	41	24	12	41	34	27	41	52	51	41	79	47	41	58	39
42	18	-2	42	24	12	42	34	27	42	52	51	42	79	47	42	58	39
43	18	-2	43	24	12	43	34	27	43	52	51	43	79	47	43	58	39
44	18	-2	44	24	12	44	34	27	44	52	51	44	79	47	44	58	39
45	18	-2	45	24	12	45	34	27	45	52	51	45	79	47	45	58	39
46	18	-2	46	24	12	46	34	27	46	52	51	46	79	47	46	58	39
47	18	-2	47	24	12	47	34	27	47	52	51	47	79	47	47	58	39
48	18	-2	48	24	12	48	34	27	48	52	51	48	79	47	48	58	39
49	18	-2	49	24	12	49	34	27	49	52	51	49	79	47	49	58	39
50	18	-2	50	24	12	50	34	27	50	52	51	50	79	47	50	58	39
51	18	-2	51	24	12	51	34	27	51	52	51	51	79	47	51	58	39
52	18	-2	52	24	12	52	34	27	52	52	51	52	79	47	52	58	39
53	18	-2	53	24	12	53	34	27	53	52	51	53	79	47	53	58	39
54	18	-2	54	24	12	54	34	27	54	52	51	54	79	47	54	58	39
55	18	-2	55	24	12	55	34	27	55	52	51	55	79	47	55	58	39
56	18	-2	56	24	12	56	34	27	56	52	51	56	79	47	56	58	39
57	18	-2	57	24	12	57	34	27	57	52	51	57	79	47	57	58	39
58	18	-2	58	24	12	58	34	27	58	52	51	58	79	47	58	58	39
59	18	-2	59	24	12	59	34	27	59	52	51	59	79	47	59	58	39
60	18	-2	60	24	12	60	34	27	60	52	51	60	79	47	60	58	39
61	18	-2	61	24	12	61	34	27	61	52	51	61	79	47	61	58	39
62	18	-2	62	24	12	62	34	27	62	52	51	62	79	47	62	58	39
63	18	-2	63	24	12	63	34	27	63	52	51	63	79	47	63	58	39
64	18	-2	64	24	12	64	34	27	64	52	51	64	79	47	64	58	39
65	18	-2	65	24	12	65	34	27	65	52	51	65	79	47	65	58	39
66	18	-2	66	24	12	66	34	27	66	52	51	66	79	47	66	58	39
67	18	-2	67	24	12	67	34	27	67	52	51	67	79	47	67	58	39
68	18	-2	68	24	12	68	34	27	68	52	51	68	79	47	68	58	39
69	18	-2	69	24	12	69	34	27	69	52	51	69	79	47	69	58	39
70	18	-2	70	24	12	70	34	27	70	52	51	70	79	47	70	58	39
71	18	-2	71	24	12	71	34	27	71	52	51	71	79	47	71	58	39
72	18	-2	72	24	12	72	34	27	72	52	51	72	79	47	72	58	39
73	18	-2	73	24	12	73	34	27	73	52	51	73	79	47	73	58	39
74	18	-2	74	24	12	74	34	27	74	52	51	74	79	47	74	58	39
75	18	-2	75	24	12	75	34	27	75	52	51	75	79	47	75	58	39
76	18	-2	76	24	12	76	34	27	76	52	51	76	79	47	76	58	39
77	18	-2	77	24	12	77	34	27	77	52	51	77	79	47	77	58	39
78	18	-2	78	24	12	78	34	27	78	52	51	78	79	47	78	58	39
79	18	-2	79	24	12	79	34	27	79	52	51	79	79	47	79	58	39
80	18	-2	80	24	12	80	34	27	80	52	51	80	79	47	80	58	39
81	18	-2	81	24	12	81	34	27	81	52	51	81	79	47	81	58	39
82	18	-2	82	24	12	82	34	27	82	52	51	82	79	47	82	58	39
83	18	-2	83	24	12	83	34	27	83	52	51	83	79	47	83	58	39
84	18	-2	84	24	12	84	34	27	84	52	51	84	79	47	84	58	39
85	18	-2	85	24	12	85	34	27	85	52	51	85	79	47	85	58	39
86	18	-2	86	24	12	86	34	27	86	52	51	86	79	47	86	58	39
87	18	-2	87	24	12	87	34	27	87	52	51	87	79	47	87	58	39
88	18	-2	88	24	12	88	34	27	88	52	51	88	79	47	88	58	39
89	18	-2	89	24	12	89	34	27	89	52	51	89	79	47	89	58	39
90	18	-2	90	24	12	90	34	27	90	52	51	90	79	47	90	58	39
91	18	-2	91	24	12	91	34	27	91	52	51	91	79	47	91	58	39
92	18	-2	92	24	12	92	34	27	92	52	51	92	79	47	92		









STIMULATED DAILY TEMPERATURES FOR: ALBERTA: NORTHERN  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE R-SQUARES: 0.4165 0.0001 0.8133 0.0002

T-MAX: 9.1 17.8 29.3 47.1 61.5 57.5 71.1 69.5 50.1 48.4 27.7 14.4  
 T-MIN: -10.3 -3.4 6.6 24.6 36.7 43.5 47.8 45.3 37.2 28.2 10.8 -3.5

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	11	11	1	11	11	1	11	11	1	11	11	1	11	11	1	11	11			
2	11	11	2	11	11	2	11	11	2	11	11	2	11	11	2	11	11			
3	11	11	3	11	11	3	11	11	3	11	11	3	11	11	3	11	11			
4	11	11	4	11	11	4	11	11	4	11	11	4	11	11	4	11	11			
5	11	11	5	11	11	5	11	11	5	11	11	5	11	11	5	11	11			
6	11	11	6	11	11	6	11	11	6	11	11	6	11	11	6	11	11			
7	11	11	7	11	11	7	11	11	7	11	11	7	11	11	7	11	11			
8	11	11	8	11	11	8	11	11	8	11	11	8	11	11	8	11	11			
9	11	11	9	11	11	9	11	11	9	11	11	9	11	11	9	11	11			
10	11	11	10	11	11	10	11	11	10	11	11	10	11	11	10	11	11			
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11			
12	11	11	12	11	11	12	11	11	12	11	11	12	11	11	12	11	11			
13	11	11	13	11	11	13	11	11	13	11	11	13	11	11	13	11	11			
14	11	11	14	11	11	14	11	11	14	11	11	14	11	11	14	11	11			
15	11	11	15	11	11	15	11	11	15	11	11	15	11	11	15	11	11			
16	11	11	16	11	11	16	11	11	16	11	11	16	11	11	16	11	11			
17	11	11	17	11	11	17	11	11	17	11	11	17	11	11	17	11	11			
18	11	11	18	11	11	18	11	11	18	11	11	18	11	11	18	11	11			
19	11	11	19	11	11	19	11	11	19	11	11	19	11	11	19	11	11			
20	11	11	20	11	11	20	11	11	20	11	11	20	11	11	20	11	11			
21	11	11	21	11	11	21	11	11	21	11	11	21	11	11	21	11	11			
22	11	11	22	11	11	22	11	11	22	11	11	22	11	11	22	11	11			
23	11	11	23	11	11	23	11	11	23	11	11	23	11	11	23	11	11			
24	11	11	24	11	11	24	11	11	24	11	11	24	11	11	24	11	11			
25	11	11	25	11	11	25	11	11	25	11	11	25	11	11	25	11	11			
26	11	11	26	11	11	26	11	11	26	11	11	26	11	11	26	11	11			
27	11	11	27	11	11	27	11	11	27	11	11	27	11	11	27	11	11			
28	11	11	28	11	11	28	11	11	28	11	11	28	11	11	28	11	11			
29	11	11	29	11	11	29	11	11	29	11	11	29	11	11	29	11	11			
30	11	11	30	11	11	30	11	11	30	11	11	30	11	11	30	11	11			
31	11	11	31	11	11	31	11	11	31	11	11	31	11	11	31	11	11			

SIMULATED DAILY TEMPERATURES FOR: ALBERTA: CENTRAL  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS  
 RESPECTIVE R-SQUARES: 0.4205 0.0001 0.6183 0.0001

T-MAX: 12.4 20.7 30.6 44.3 52.2 58.2 73.6 71.7 71.3 50.6 30.9 18.0  
 T-MIN: -7.6 -2.0 8.1 25.5 36.7 43.5 44.4 45.7 37.4 24.0 12.7 -0.6

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN															
1	12.4	-7.6	1	20.7	-2.0	1	30.6	8.1	1	44.3	25.5	1	52.2	36.7	1	58.2	43.5	1	73.6	44.4	1	71.7	45.7	1	71.3	37.4	1	50.6	24.0	1	30.9	12.7	1	18.0	-0.6
2	12.4	-7.6	2	20.7	-2.0	2	30.6	8.1	2	44.3	25.5	2	52.2	36.7	2	58.2	43.5	2	73.6	44.4	2	71.7	45.7	2	71.3	37.4	2	50.6	24.0	2	30.9	12.7	2	18.0	-0.6
3	12.4	-7.6	3	20.7	-2.0	3	30.6	8.1	3	44.3	25.5	3	52.2	36.7	3	58.2	43.5	3	73.6	44.4	3	71.7	45.7	3	71.3	37.4	3	50.6	24.0	3	30.9	12.7	3	18.0	-0.6
4	12.4	-7.6	4	20.7	-2.0	4	30.6	8.1	4	44.3	25.5	4	52.2	36.7	4	58.2	43.5	4	73.6	44.4	4	71.7	45.7	4	71.3	37.4	4	50.6	24.0	4	30.9	12.7	4	18.0	-0.6
5	12.4	-7.6	5	20.7	-2.0	5	30.6	8.1	5	44.3	25.5	5	52.2	36.7	5	58.2	43.5	5	73.6	44.4	5	71.7	45.7	5	71.3	37.4	5	50.6	24.0	5	30.9	12.7	5	18.0	-0.6
6	12.4	-7.6	6	20.7	-2.0	6	30.6	8.1	6	44.3	25.5	6	52.2	36.7	6	58.2	43.5	6	73.6	44.4	6	71.7	45.7	6	71.3	37.4	6	50.6	24.0	6	30.9	12.7	6	18.0	-0.6
7	12.4	-7.6	7	20.7	-2.0	7	30.6	8.1	7	44.3	25.5	7	52.2	36.7	7	58.2	43.5	7	73.6	44.4	7	71.7	45.7	7	71.3	37.4	7	50.6	24.0	7	30.9	12.7	7	18.0	-0.6
8	12.4	-7.6	8	20.7	-2.0	8	30.6	8.1	8	44.3	25.5	8	52.2	36.7	8	58.2	43.5	8	73.6	44.4	8	71.7	45.7	8	71.3	37.4	8	50.6	24.0	8	30.9	12.7	8	18.0	-0.6
9	12.4	-7.6	9	20.7	-2.0	9	30.6	8.1	9	44.3	25.5	9	52.2	36.7	9	58.2	43.5	9	73.6	44.4	9	71.7	45.7	9	71.3	37.4	9	50.6	24.0	9	30.9	12.7	9	18.0	-0.6
10	12.4	-7.6	10	20.7	-2.0	10	30.6	8.1	10	44.3	25.5	10	52.2	36.7	10	58.2	43.5	10	73.6	44.4	10	71.7	45.7	10	71.3	37.4	10	50.6	24.0	10	30.9	12.7	10	18.0	-0.6
11	12.4	-7.6	11	20.7	-2.0	11	30.6	8.1	11	44.3	25.5	11	52.2	36.7	11	58.2	43.5	11	73.6	44.4	11	71.7	45.7	11	71.3	37.4	11	50.6	24.0	11	30.9	12.7	11	18.0	-0.6
12	12.4	-7.6	12	20.7	-2.0	12	30.6	8.1	12	44.3	25.5	12	52.2	36.7	12	58.2	43.5	12	73.6	44.4	12	71.7	45.7	12	71.3	37.4	12	50.6	24.0	12	30.9	12.7	12	18.0	-0.6
13	12.4	-7.6	13	20.7	-2.0	13	30.6	8.1	13	44.3	25.5	13	52.2	36.7	13	58.2	43.5	13	73.6	44.4	13	71.7	45.7	13	71.3	37.4	13	50.6	24.0	13	30.9	12.7	13	18.0	-0.6
14	12.4	-7.6	14	20.7	-2.0	14	30.6	8.1	14	44.3	25.5	14	52.2	36.7	14	58.2	43.5	14	73.6	44.4	14	71.7	45.7	14	71.3	37.4	14	50.6	24.0	14	30.9	12.7	14	18.0	-0.6
15	12.4	-7.6	15	20.7	-2.0	15	30.6	8.1	15	44.3	25.5	15	52.2	36.7	15	58.2	43.5	15	73.6	44.4	15	71.7	45.7	15	71.3	37.4	15	50.6	24.0	15	30.9	12.7	15	18.0	-0.6
16	12.4	-7.6	16	20.7	-2.0	16	30.6	8.1	16	44.3	25.5	16	52.2	36.7	16	58.2	43.5	16	73.6	44.4	16	71.7	45.7	16	71.3	37.4	16	50.6	24.0	16	30.9	12.7	16	18.0	-0.6
17	12.4	-7.6	17	20.7	-2.0	17	30.6	8.1	17	44.3	25.5	17	52.2	36.7	17	58.2	43.5	17	73.6	44.4	17	71.7	45.7	17	71.3	37.4	17	50.6	24.0	17	30.9	12.7	17	18.0	-0.6
18	12.4	-7.6	18	20.7	-2.0	18	30.6	8.1	18	44.3	25.5	18	52.2	36.7	18	58.2	43.5	18	73.6	44.4	18	71.7	45.7	18	71.3	37.4	18	50.6	24.0	18	30.9	12.7	18	18.0	-0.6
19	12.4	-7.6	19	20.7	-2.0	19	30.6	8.1	19	44.3	25.5	19	52.2	36.7	19	58.2	43.5	19	73.6	44.4	19	71.7	45.7	19	71.3	37.4	19	50.6	24.0	19	30.9	12.7	19	18.0	-0.6
20	12.4	-7.6	20	20.7	-2.0	20	30.6	8.1	20	44.3	25.5	20	52.2	36.7	20	58.2	43.5	20	73.6	44.4	20	71.7	45.7	20	71.3	37.4	20	50.6	24.0	20	30.9	12.7	20	18.0	-0.6
21	12.4	-7.6	21	20.7	-2.0	21	30.6	8.1	21	44.3	25.5	21	52.2	36.7	21	58.2	43.5	21	73.6	44.4	21	71.7	45.7	21	71.3	37.4	21	50.6	24.0	21	30.9	12.7	21	18.0	-0.6
22	12.4	-7.6	22	20.7	-2.0	22	30.6	8.1	22	44.3	25.5	22	52.2	36.7	22	58.2	43.5	22	73.6	44.4	22	71.7	45.7	22	71.3	37.4	22	50.6	24.0	22	30.9	12.7	22	18.0	-0.6
23	12.4	-7.6	23	20.7	-2.0	23	30.6	8.1	23	44.3	25.5	23	52.2	36.7	23	58.2	43.5	23	73.6	44.4	23	71.7	45.7	23	71.3	37.4	23	50.6	24.0	23	30.9	12.7	23	18.0	-0.6
24	12.4	-7.6	24	20.7	-2.0	24	30.6	8.1	24	44.3	25.5	24	52.2	36.7	24	58.2	43.5	24	73.6	44.4	24	71.7	45.7	24	71.3	37.4	24	50.6	24.0	24	30.9	12.7	24	18.0	-0.6
25	12.4	-7.6	25	20.7	-2.0	25	30.6	8.1	25	44.3	25.5	25	52.2	36.7	25	58.2	43.5	25	73.6	44.4	25	71.7	45.7	25	71.3	37.4	25	50.6	24.0	25	30.9	12.7	25	18.0	-0.6
26	12.4	-7.6	26	20.7	-2.0	26	30.6	8.1	26	44.3	25.5	26	52.2	36.7	26	58.2	43.5	26	73.6	44.4	26	71.7	45.7	26	71.3	37.4	26	50.6	24.0	26	30.9	12.7	26	18.0	-0.6
27	12.4	-7.6	27	20.7	-2.0	27	30.6	8.1	27	44.3	25.5	27	52.2	36.7	27	58.2	43.5	27	73.6	44.4	27	71.7	45.7	27	71.3	37.4	27	50.6	24.0	27	30.9	12.7	27	18.0	-0.6
28	12.4	-7.6	28	20.7	-2.0	28	30.6	8.1	28	44.3	25.5	28	52.2	36.7	28	58.2	43.5	28	73.6	44.4	28	71.7	45.7	28	71.3	37.4	28	50.6	24.0	28	30.9	12.7	28	18.0	-0.6
29	12.4	-7.6	29	20.7	-2.0	29	30.6	8.1	29	44.3	25.5	29	52.2	36.7	29	58.2	43.5	29	73.6	44.4	29	71.7	45.7	29	71.3	37.4	29	50.6	24.0	29	30.9	12.7	29	18.0	-0.6
30	12.4	-7.6	30	20.7	-2.0	30	30.6	8.1	30	44.3	25.5	30	52.2	36.7	30	58.2	43.5	30	73.6	44.4	30	71.7	45.7	30	71.3	37.4	30	50.6	24.0	30	30.9	12.7	30	18.0	-0.6
31	12.4	-7.6	31	20.7	-2.0	31	30.6	8.1	31	44.3	25.5	31	52.2	36.7	31	58.2	43.5	31	73.6	44.4	31	71.7	45.7	31	71.3	37.4	31	50.6	24.0	31	30.9	12.7	31	18.0	-0.6
32	12.4	-7.6	32	20.7	-2.0	32	30.6	8.1	32	44.3	25.5	32	52.2	36.7	32	58.2	43.5	32	73.6	44.4	32	71.7	45.7	32	71.3	37.4	32	50.6	24.0	32	30.9	12.7	32	18.0	-0.6
33	12.4	-7.6	33	20.7	-2.0	33	30.6	8.1	33	44.3	25.5	33	52.2	36.7	33	58.2	43.5	33	73.6	44.4	33	71.7	45.7	33	71.3	37.4	33	50.6	24.0	33	30.9	12.7	33	18.0	-0.6
34	12.4	-7.6	34	20.7	-2.0	34	30.6	8.1	34	44.3	25.5	34	52.2	36.7	34	58.2	43.5	34	73.6	44.4	34	71.7	45.7	34	71.3	37.4	34	50.6	24.0	34	30.9	12.7	34	18.0	-0.6
35	12.4	-7.6	35	20.7	-2.0	35	30.6	8.1	35	44.3	25.5	35	52.2	36.7	35	58.2	43.5	35	73.6	44.4	35	71.7	45.7	35	71.3	37.4	35	50.6	24.0	35	30.9	12.7	35	18.0	-0.6
36	12.4	-7.6	36	20.7	-2.0	36	30.6	8.1	36	44.3	25.5	36	52.2	36.7	36	58.2	43.5	36	73.6	44.4	36	71.7	45.7	36	71.3	37.4	36	50.6	24.0	36	30.9	12.7	36	18.0	-0.6
37	12.4	-7.6	37	20.7	-2.0	37	30.6	8.1	37	44.3	25.5	37	52.2	36.7	37	58.2	43.5	37	73.6	44.4	37	71.7	45.7	37	71.3	37.4	37	50.6	24.0	37	30.9	12.7	37	18.0	-0.6
38	12.4	-7.6	38	20.7	-2.0	38	30.6	8.1	38	44.3	25.5	38	52.2	36.7	38	58.2	43.5	38	73.6	44.4	38	71.7	45.7	38	71.3	37.4	38	50.6	24.0	38	30.9	12.7	38	18.0	-0.6
39	12.4	-7.6	39	20.7	-2.0	39	30.6	8.1	39	44.3	25.5	39	52.2	36.7	39	58.2	43.5	39	73.6	44.4	39	71.7	45.7	39	71.3	37.4	39	50.6	24.0	39	30.9	12.7	39	18.0	-0.6
40	12.4	-7.6	40	20.7	-2.0	40	30.6	8.1	40	44.3	25.5	40	52.2	36.7	40	58.2	43.5	40	73.6	44.4	40	71.7	45.7	40	71.3	37.4	40	50.6	24.0	40	30.9	12.7	40	18.	

SIMULATED DAILY TEMPERATURES FOR: ALBERTA: SOUTHERN  
 BASED UPON 1ST AND 2ND HARMONICS OF MONTHLY NORMALS:

RESPECTIVE C-SQ-14-COS: 0.4275 0.0000 0.8249 0.0000

T-MAX: 21.0 27.1 34.9 50.5 62.6 68.5 76.5 74.1 64.0 54.0 37.0 27.0  
 T-MIN: 0.5 5.0 13.1 26.4 36.7 43.5 48.0 45.5 37.9 29.5 16.5 7.0

DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN	DAY	TX	TN
1	21	0	1	27	5	1	35	13	1	50	26	1	63	37	1	68	48
2	21	0	2	27	5	2	35	13	2	50	26	2	63	37	2	68	48
3	21	0	3	27	5	3	35	13	3	50	26	3	63	37	3	68	48
4	21	0	4	27	5	4	35	13	4	50	26	4	63	37	4	68	48
5	21	0	5	27	5	5	35	13	5	50	26	5	63	37	5	68	48
6	21	0	6	27	5	6	35	13	6	50	26	6	63	37	6	68	48
7	21	0	7	27	5	7	35	13	7	50	26	7	63	37	7	68	48
8	21	0	8	27	5	8	35	13	8	50	26	8	63	37	8	68	48
9	21	0	9	27	5	9	35	13	9	50	26	9	63	37	9	68	48
10	21	0	10	27	5	10	35	13	10	50	26	10	63	37	10	68	48
11	21	0	11	27	5	11	35	13	11	50	26	11	63	37	11	68	48
12	21	0	12	27	5	12	35	13	12	50	26	12	63	37	12	68	48
13	21	0	1	27	5	1	35	13	1	50	26	1	63	37	1	68	48
14	21	0	2	27	5	2	35	13	2	50	26	2	63	37	2	68	48
15	21	0	3	27	5	3	35	13	3	50	26	3	63	37	3	68	48
16	21	0	4	27	5	4	35	13	4	50	26	4	63	37	4	68	48
17	21	0	5	27	5	5	35	13	5	50	26	5	63	37	5	68	48
18	21	0	6	27	5	6	35	13	6	50	26	6	63	37	6	68	48
19	21	0	7	27	5	7	35	13	7	50	26	7	63	37	7	68	48
20	21	0	8	27	5	8	35	13	8	50	26	8	63	37	8	68	48
21	21	0	9	27	5	9	35	13	9	50	26	9	63	37	9	68	48
22	21	0	10	27	5	10	35	13	10	50	26	10	63	37	10	68	48
23	21	0	11	27	5	11	35	13	11	50	26	11	63	37	11	68	48
24	21	0	12	27	5	12	35	13	12	50	26	12	63	37	12	68	48
25	21	0	1	27	5	1	35	13	1	50	26	1	63	37	1	68	48
26	21	0	2	27	5	2	35	13	2	50	26	2	63	37	2	68	48
27	21	0	3	27	5	3	35	13	3	50	26	3	63	37	3	68	48
28	21	0	4	27	5	4	35	13	4	50	26	4	63	37	4	68	48
29	21	0	5	27	5	5	35	13	5	50	26	5	63	37	5	68	48
30	21	0	6	27	5	6	35	13	6	50	26	6	63	37	6	68	48
31	21	0	7	27	5	7	35	13	7	50	26	7	63	37	7	68	48
32	21	0	8	27	5	8	35	13	8	50	26	8	63	37	8	68	48
33	21	0	9	27	5	9	35	13	9	50	26	9	63	37	9	68	48
34	21	0	10	27	5	10	35	13	10	50	26	10	63	37	10	68	48
35	21	0	11	27	5	11	35	13	11	50	26	11	63	37	11	68	48
36	21	0	12	27	5	12	35	13	12	50	26	12	63	37	12	68	48
37	21	0	1	27	5	1	35	13	1	50	26	1	63	37	1	68	48
38	21	0	2	27	5	2	35	13	2	50	26	2	63	37	2	68	48
39	21	0	3	27	5	3	35	13	3	50	26	3	63	37	3	68	48
40	21	0	4	27	5	4	35	13	4	50	26	4	63	37	4	68	48
41	21	0	5	27	5	5	35	13	5	50	26	5	63	37	5	68	48
42	21	0	6	27	5	6	35	13	6	50	26	6	63	37	6	68	48
43	21	0	7	27	5	7	35	13	7	50	26	7	63	37	7	68	48
44	21	0	8	27	5	8	35	13	8	50	26	8	63	37	8	68	48
45	21	0	9	27	5	9	35	13	9	50	26	9	63	37	9	68	48
46	21	0	10	27	5	10	35	13	10	50	26	10	63	37	10	68	48
47	21	0	11	27	5	11	35	13	11	50	26	11	63	37	11	68	48
48	21	0	12	27	5	12	35	13	12	50	26	12	63	37	12	68	48
49	21	0	1	27	5	1	35	13	1	50	26	1	63	37	1	68	48
50	21	0	2	27	5	2	35	13	2	50	26	2	63	37	2	68	48
51	21	0	3	27	5	3	35	13	3	50	26	3	63	37	3	68	48
52	21	0	4	27	5	4	35	13	4	50	26	4	63	37	4	68	48
53	21	0	5	27	5	5	35	13	5	50	26	5	63	37	5	68	48
54	21	0	6	27	5	6	35	13	6	50	26	6	63	37	6	68	48
55	21	0	7	27	5	7	35	13	7	50	26	7	63	37	7	68	48
56	21	0	8	27	5	8	35	13	8	50	26	8	63	37	8	68	48
57	21	0	9	27	5	9	35	13	9	50	26	9	63	37	9	68	48
58	21	0	10	27	5	10	35	13	10	50	26	10	63	37	10	68	48
59	21	0	11	27	5	11	35	13	11	50	26	11	63	37	11	68	48
60	21	0	12	27	5	12	35	13	12	50	26	12	63	37	12	68	48

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APPENDIX C

PHENOLOGY MODEL OUTPUT FOR SPRING WHEAT

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: ALBERTA SOUTH  
 LATITUDE: 51.00

OBSERVED												
NORMAL MAX:	21.2	27.1	34.9	50.5	62.6	68.5	76.5	74.1	64.0	54.1	37.0	27.0
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	29.5	16.5	7.0
ESTIMATED												
NORMAL MAX:	21.7	24.0	34.3	48.2	62.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3
NORMAL MIN:	1.4	3.8	11.7	23.3	35.7	45.4	49.8	47.9	40.0	28.3	16.0	6.3

P	F	J	M	S	R
85	120	155	188	206	221
86	120	155	188	206	221
87	120	155	188	206	221
88	120	155	188	206	221
89	120	155	188	206	221
90	120	155	188	206	221
91	120	155	188	206	221
92	120	155	188	206	221
93	120	155	188	206	221
94	120	155	188	206	221
95	120	155	188	206	221
96	120	155	188	206	221
97	120	155	188	206	221
98	120	155	188	206	221
99	120	155	188	206	221
00	120	155	188	206	221
01	120	155	188	206	221
02	120	155	188	206	221
03	120	155	188	206	221
04	120	155	188	206	221
05	120	155	188	206	221
06	120	155	188	206	221
07	120	155	188	206	221
08	120	155	188	206	221
09	120	155	188	206	221
10	120	155	188	206	221
11	120	155	188	206	221
12	120	155	188	206	221
13	120	155	188	206	221
14	120	155	188	206	221



CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: ALBERTA SOUTH  
 LATITUDE: 51.00

OBSERVED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	21.2	27.1	34.9	50.5	62.6	68.5	76.5	74.1	64.0	54.1	37.0	27.0
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	29.5	16.5	7.0
ESTIMATED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	21.7	24.6	34.3	43.2	52.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3
NORMAL MIN:	1.9	3.8	11.7	23.3	35.7	45.4	49.8	47.9	40.0	28.3	16.0	6.3

P	E	J	M	S	R
115	126	158	186	204	223
115	127	158	186	204	223
117	128	158	186	204	223
118	129	159	187	204	223
119	129	159	187	204	224
120	130	159	187	204	224
121	131	160	188	210	224
122	132	160	188	210	224
123	133	161	188	210	225
124	134	161	188	211	225
125	134	161	188	211	225
126	135	162	189	211	225
127	136	162	189	212	225
128	137	163	190	212	227
129	138	164	190	213	227
130	139	164	190	213	228
131	140	165	191	214	228
132	141	165	191	214	229
133	142	166	192	215	229
134	143	167	192	215	230
135	143	167	193	216	230
136	144	168	193	216	231
137	145	169	194	217	232
138	146	169	194	218	232
139	147	170	195	218	233
140	148	171	196	219	234
141	149	171	196	220	234
142	150	172	197	221	236
143	151	173	198	221	236
144	152	174	198	222	237

ORIGINAL PAGE IS  
 OF POOR QUALITY

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: ALBERTA SOUTH  
 LATITUDE: 51.00

OBSERVED														
NORMAL MAX:	21.2	27.1	34.9	50.5	62.6	68.5	76.5	74.1	64.6	54.1	37.0	27.0		
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	29.5	16.5	7.0		
ESTIMATED														
NORMAL MAX:	21.7	24.6	34.3	48.2	62.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3		
NORMAL MIN:	1.9	3.8	11.7	23.3	35.7	45.4	49.8	47.9	40.0	28.3	16.0	6.3		

	P	E	J	M	S	R
145	153	174	199	222	233	238
146	154	175	200	223	234	239
147	155	176	201	224	235	240
148	156	177	202	225	236	241
149	157	178	203	226	237	242
150	158	179	204	227	238	243
151	159	180	205	228	239	244
152	160	181	206	229	240	245
153	161	182	207	230	241	246
154	162	183	208	231	242	247
155	163	184	209	232	243	248
156	164	185	210	233	244	249
157	165	186	211	234	245	250
158	166	187	212	235	246	251
159	167	188	213	236	247	252
160	168	189	214	237	248	253
161	169	190	215	238	249	254
162	170	191	216	239	250	255
163	171	192	217	240	251	256
164	172	193	218	241	252	257
165	173	194	219	242	253	258
166	174	195	220	243	254	259
167	175	196	221	244	255	260
168	176	197	222	245	256	261
169	177	198	223	246	257	262
170	178	199	224	247	258	263
171	179	200	225	248	259	264
172	180	201	226	249	260	265
173	181	202	227	250	261	266
174	181	200	227	251	262	264

CROP STAGE JULI-DATES FOR CROPS: SW DERIVED FROM  
 CLIMATIC NORMALS APPLIED TO A ROBERTSON THIS MODEL

LOCATION: ALBERTA SOUTH LEATHERIDGE  
 LATITUDE: 49.70

UNOBSERVED														
NORMAL MAX:	21.2	27.1	34.9	50.5	62.0	68.5	76.5	74.1	64.0	50.1	37.0	27.0		
NORMAL MIN:	0.5	5.0	13.1	20.8	36.7	43.5	48.0	45.5	37.4	24.5	16.5	7.0		
ESTIMATED														
NORMAL MAX:	21.7	28.6	34.3	48.2	62.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3		
NORMAL MIN:	1.9	3.8	11.7	23.3	35.7	45.4	49.6	47.4	40.0	28.3	16.0	0.3		

P	E	J	M	S	X
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
13	13	13	13	13	13
14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
17	17	17	17	17	17
18	18	18	18	18	18
19	19	19	19	19	19
20	20	20	20	20	20
21	21	21	21	21	21
22	22	22	22	22	22
23	23	23	23	23	23
24	24	24	24	24	24
25	25	25	25	25	25
26	26	26	26	26	26
27	27	27	27	27	27
28	28	28	28	28	28
29	29	29	29	29	29
30	30	30	30	30	30
31	31	31	31	31	31
32	32	32	32	32	32
33	33	33	33	33	33
34	34	34	34	34	34
35	35	35	35	35	35
36	36	36	36	36	36
37	37	37	37	37	37
38	38	38	38	38	38
39	39	39	39	39	39
40	40	40	40	40	40
41	41	41	41	41	41
42	42	42	42	42	42
43	43	43	43	43	43
44	44	44	44	44	44
45	45	45	45	45	45
46	46	46	46	46	46
47	47	47	47	47	47
48	48	48	48	48	48
49	49	49	49	49	49
50	50	50	50	50	50
51	51	51	51	51	51
52	52	52	52	52	52
53	53	53	53	53	53
54	54	54	54	54	54
55	55	55	55	55	55
56	56	56	56	56	56
57	57	57	57	57	57
58	58	58	58	58	58
59	59	59	59	59	59
60	60	60	60	60	60
61	61	61	61	61	61
62	62	62	62	62	62
63	63	63	63	63	63
64	64	64	64	64	64
65	65	65	65	65	65
66	66	66	66	66	66
67	67	67	67	67	67
68	68	68	68	68	68
69	69	69	69	69	69
70	70	70	70	70	70
71	71	71	71	71	71
72	72	72	72	72	72
73	73	73	73	73	73
74	74	74	74	74	74
75	75	75	75	75	75
76	76	76	76	76	76
77	77	77	77	77	77
78	78	78	78	78	78
79	79	79	79	79	79
80	80	80	80	80	80
81	81	81	81	81	81
82	82	82	82	82	82
83	83	83	83	83	83
84	84	84	84	84	84
85	85	85	85	85	85
86	86	86	86	86	86
87	87	87	87	87	87
88	88	88	88	88	88
89	89	89	89	89	89
90	90	90	90	90	90
91	91	91	91	91	91
92	92	92	92	92	92
93	93	93	93	93	93
94	94	94	94	94	94
95	95	95	95	95	95
96	96	96	96	96	96
97	97	97	97	97	97
98	98	98	98	98	98
99	99	99	99	99	99
100	100	100	100	100	100

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CROP STAGE JULIAN DATES FOR CROP: 52 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: ALBERTA SOUTH LEITCHBRIDGE  
 LATITUDE: 49.70

OBSERVED												
NORMAL MAX:	21.2	27.1	34.9	50.5	62.6	68.5	76.5	74.1	64.6	54.1	37.0	27.0
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	29.5	16.5	7.0
ESTIMATED												
NORMAL MAX:	21.7	24.6	34.3	48.2	62.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3
NORMAL MIN:	1.9	3.8	11.7	23.3	35.7	45.4	49.8	47.9	40.0	28.3	16.0	6.3

P	E	J	J	S	A
125	134	102	184	213	227
126	135	103	190	213	227
127	136	103	196	213	228
128	137	104	191	214	228
129	138	104	191	214	229
130	139	105	191	215	229
131	140	105	192	215	230
132	141	106	192	216	230
133	142	107	193	217	231
134	142	107	193	217	231
135	143	108	194	218	232
136	144	108	194	218	233
137	145	109	195	219	233
138	146	110	195	219	234
139	147	111	196	220	234
140	148	111	197	221	235
141	149	112	197	221	235
142	150	113	198	222	237
143	151	114	199	223	238
144	152	114	199	224	238
145	153	115	200	225	240
146	154	116	201	226	242
147	155	117	201	227	243
148	156	118	202	228	244
149	157	118	203	229	245
150	158	119	204	230	247
151	159	120	205	231	248
152	160	121	205	233	250
153	161	122	206	234	251
154	162	123	207	235	253

CROP STAGE JULIA DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: ALBERTA SOUTH LACOMBE  
 LATITUDE: 52.50

UNOBSERVED														
NORMAL MAX:	21.2	27.1	34.9	50.5	62.6	68.5	76.5	74.1	64.6	54.1	37.9	27.0		
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	29.5	16.5	7.0		
ESTIMATED														
NORMAL MAX:	21.7	24.6	34.3	48.2	52.5	73.4	78.0	75.1	65.4	51.5	37.2	26.3		
NORMAL MIN:	1.9	3.8	11.7	23.3	35.7	45.4	49.8	47.9	40.0	28.3	16.0	6.3		

	P	E	J	M	S	A
100	120	154	183	205	220	
101	120	154	183	205	220	
102	120	154	183	205	220	
103	120	155	183	205	220	
104	121	155	183	205	220	
105	121	155	183	205	220	
106	121	155	184	205	220	
107	122	155	184	205	220	
108	123	155	184	205	220	
109	123	156	184	205	220	
110	123	156	184	205	221	
111	124	156	184	205	221	
112	124	156	184	205	221	
113	125	156	184	205	221	
114	126	156	185	205	221	
115	126	157	185	205	221	
116	127	157	185	207	221	
117	128	157	185	207	221	
118	129	158	185	207	222	
119	129	158	186	207	222	
120	130	158	186	208	222	
121	131	159	186	208	223	
122	132	159	187	208	223	
123	133	159	187	208	223	
124	134	160	187	209	224	
125	134	161	187	209	224	
126	135	161	188	210	224	
127	135	162	188	210	225	
128	136	162	189	210	225	
129	137	162	189	210	225	
130	138	163	189	211	226	

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMIS MODEL

LOCATION: ALBERTA SOUTH LACOMBE

LATITUDE: 52.50

OBSERVED

NORMAL MAX: 21.2 27.1 34.9 50.5 62.6 68.5 76.5 74.1 64.6 54.1 37.0 27.0

NORMAL MIN: 0.5 5.0 13.1 26.8 36.7 43.5 48.0 45.5 37.9 29.5 16.5 7.0

ESTIMATED

NORMAL MAX: 21.7 24.6 34.3 48.2 62.5 73.4 78.0 75.1 65.4 51.5 37.2 26.3

NORMAL MIN: 1.9 3.8 11.7 23.3 35.7 45.4 49.8 47.9 40.0 28.3 16.0 8.3

	P	E	J	M	S	A
130	139	163	189	211	226	
131	140	164	190	212	227	
132	141	165	190	212	227	
133	142	165	191	213	228	
134	142	166	191	213	228	
135	143	166	192	214	229	
136	144	167	192	214	229	
137	145	168	193	215	230	
138	145	168	193	216	231	
139	147	169	194	216	231	
140	148	170	195	217	232	
141	149	171	195	218	233	
142	150	171	196	218	234	
143	151	172	196	219	234	
144	152	173	197	220	235	
145	153	174	198	221	236	
146	154	175	199	222	237	
147	155	175	199	223	238	
148	156	176	200	224	239	
149	157	177	201	225	240	
150	158	178	202	226	241	
151	159	179	202	227	243	
152	160	180	203	228	244	
153	161	181	204	229	245	
154	162	181	205	230	247	
155	163	182	206	231	248	
156	164	183	207	232	250	
157	165	184	208	234	252	
158	166	185	208	235	253	
159	167	186	209	236	255	

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CHOP STAGE JULIAN DATES FOR CHOP: SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMIS MODEL

LOCATION: ALBERTA CENTRAL  
 LATITUDE: 56.00  
 OBSERVED

NORMAL MAX:	12.4	20.3	30.6	44.0	62.2	83.2	113.0	170.7	261.3	350.4	390.0	10.0
NORMAL MIN:	-7.6	-2.0	8.4	25.5	36.7	43.5	48.4	45.7	37.4	28.0	12.7	-0.6
ESTIMATE)												
NORMAL MAX:	12.9	18.8	28.3	44.5	60.9	73.3	78.2	74.4	62.6	46.0	30.2	17.8
NORMAL MIN:	-6.2	-4.0	5.5	19.7	34.7	46.5	52.2	50.0	40.5	26.3	11.2	-0.7

P	E	J	A	S	M
105	126	155	182	202	217
106	126	155	182	202	217
107	126	155	182	202	217
108	126	155	182	202	217
109	126	155	182	202	217
110	127	156	182	202	217
111	127	156	182	202	217
112	127	156	182	202	217
113	128	156	182	202	217
114	128	156	182	202	217
115	128	156	182	202	217
116	129	157	183	203	217
117	129	157	183	203	217
118	130	157	183	203	217
119	131	157	183	203	218
120	131	158	183	203	218
121	132	158	183	203	218
122	133	158	183	204	218
123	134	159	184	204	218
124	134	159	184	204	219
125	135	159	184	204	219
126	136	160	185	205	219
127	137	160	185	205	219
128	138	161	185	205	220
129	138	161	185	206	220
130	139	161	185	206	220
131	140	162	186	206	221
132	141	162	186	207	221
133	142	163	187	207	222
134	143	164	188	208	222

CROP STAGE JULIAN DATES FOR CROP: 54 DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON PHITS MODEL

LOCATION: ALBERTA CENTRAL  
LATITUDE: 50.00

UNOBSERVED  
NORMAL MAX: 12.4 20.3 30.6 48.6 62.2 66.2 73.6 70.7 61.3 50.4 30.6 18.0  
NORMAL MIN: -7.0 -2.0 8.1 25.5 36.7 43.5 48.4 45.7 37.4 28.0 12.7 -0.6  
ESTIMATED  
NORMAL MAX: 12.9 16.8 28.3 44.5 60.9 73.3 78.2 74.4 62.6 46.6 30.2 17.8  
NORMAL MIN: -6.2 -4.0 5.5 19.7 34.7 46.6 52.2 50.0 40.5 26.3 11.2 -0.7

	P	E	J	M	S	J
135	144	164	188	208	222	
136	145	165	188	204	223	
137	145	166	189	204	223	
138	145	166	189	210	224	
139	147	167	190	210	224	
140	147	168	191	211	225	
141	149	168	191	211	225	
142	150	169	192	212	226	
143	151	170	192	213	227	
144	152	171	193	213	227	
145	153	171	193	214	228	
146	154	172	194	215	229	
147	155	173	195	215	230	
148	156	174	195	216	231	
149	157	175	196	217	231	
150	158	176	197	218	232	
151	159	176	198	219	233	
152	160	177	198	220	234	
153	161	178	199	221	235	
154	162	179	200	222	236	
155	163	180	201	223	237	
156	164	181	202	223	238	
157	165	182	202	224	239	
158	166	182	203	225	240	
159	167	183	204	226	242	
160	168	184	205	227	243	
161	169	185	205	229	244	
162	169	186	206	230	245	
163	170	187	207	231	247	
164	171	187	208	232	248	

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO W. ROBERTSON BMTS MODEL

LOCATION: ALBERTA CENTRAL EDMONTON  
 LATITUDE: 53.50  
 OBSERVED

NORMAL MAX:	12.4	20.3	30.6	44.6	62.2	68.2	73.6	70.7	61.3	50.4	30.6	18.0
NORMAL MIN:	-7.6	-2.0	8.1	25.5	36.7	43.5	48.4	45.7	37.4	28.0	12.7	-0.6
ESTIMATED												
NORMAL MAX:	12.4	16.6	26.3	44.5	60.9	73.3	78.2	74.4	62.8	46.6	30.2	17.8
NORMAL MIN:	-6.2	-4.0	5.5	14.7	34.7	46.6	52.2	50.0	40.5	28.3	11.2	-0.7

	P	E	J	M	S	R
95	1259	157	188	204	218	228
96	1259	157	188	204	218	228
97	1259	157	188	204	218	228
98	1259	157	188	204	218	228
99	1259	157	188	204	218	228
100	1259	157	188	204	218	228
101	1260	157	188	204	218	228
102	1260	157	188	204	218	228
103	1260	157	188	204	218	228
104	1260	157	188	204	218	228
105	1260	157	188	204	218	228
106	1260	157	188	204	218	228
107	1260	157	188	204	218	228
108	1260	157	188	204	218	228
109	1260	157	188	204	218	228
110	1260	157	188	204	218	228
111	1260	157	188	204	218	228
112	1260	157	188	204	218	228
113	1260	157	188	204	218	228
114	1260	157	188	204	218	228
115	1260	157	188	204	218	228
116	1260	157	188	204	218	228
117	1260	157	188	204	218	228
118	1260	157	188	204	218	228
119	1260	157	188	204	218	228
120	1260	157	188	204	218	228
121	1260	157	188	204	218	228
122	1260	157	188	204	218	228
123	1260	157	188	204	218	228
124	1260	157	188	204	218	228
125	1260	157	188	204	218	228
126	1260	157	188	204	218	228
127	1260	157	188	204	218	228
128	1260	157	188	204	218	228
129	1260	157	188	204	218	228
130	1260	157	188	204	218	228
131	1260	157	188	204	218	228
132	1260	157	188	204	218	228
133	1260	157	188	204	218	228
134	1260	157	188	204	218	228
135	1260	157	188	204	218	228
136	1260	157	188	204	218	228
137	1260	157	188	204	218	228
138	1260	157	188	204	218	228
139	1260	157	188	204	218	228
140	1260	157	188	204	218	228
141	1260	157	188	204	218	228
142	1260	157	188	204	218	228
143	1260	157	188	204	218	228
144	1260	157	188	204	218	228
145	1260	157	188	204	218	228
146	1260	157	188	204	218	228
147	1260	157	188	204	218	228
148	1260	157	188	204	218	228
149	1260	157	188	204	218	228
150	1260	157	188	204	218	228

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CROP STAGE JULIA / DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: ALBERTA CENTRAL EDMONTON  
 LATITUDE: 53.50

OBSERVED  
 NORMAL MAX: 12.4 20.3 30.6 48.6 62.2 88.2 73.6 70.7 61.3 50.4 30.6 18.0  
 NORMAL MIN: -7.6 -2.0 8.1 25.5 36.7 43.5 48.4 45.7 37.4 28.0 12.7 -0.6  
 ESTIMATED  
 NORMAL MAX: 12.9 18.8 28.3 44.5 60.9 73.3 76.2 74.4 62.8 46.8 30.2 17.8  
 NORMAL MIN: -6.2 -4.0 5.5 19.7 34.7 46.6 52.2 50.0 40.5 26.3 11.2 -0.7

F	E	J	M	S	R
125	135	161	186	207	220
126	136	161	186	207	221
127	137	162	187	207	221
128	138	162	187	208	221
129	138	162	187	208	222
130	139	163	188	209	222
131	140	163	188	209	222
132	141	164	188	209	223
133	142	165	189	210	223
134	143	165	189	210	224
135	144	166	190	211	224
136	145	167	191	211	225
137	146	168	191	212	225
138	147	168	192	212	226
139	148	169	192	213	227
140	148	169	193	214	227
141	149	170	193	214	228
142	150	170	193	215	228
143	151	171	194	215	229
144	152	172	195	216	230
145	153	173	195	217	231
146	154	174	196	218	232
147	155	174	197	219	232
148	156	175	197	219	233
149	157	176	198	220	234
150	158	177	199	221	235
151	159	177	199	222	236
152	160	178	200	222	237
153	161	179	201	224	238
154	162	180	202	225	240

CHOP STAGE JULIAN DATES FOR CHOP: SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-BATS MODEL

LOCATION: ALBERTA NORTH  
 LATITUDE: 57.00

OBSERVED  
 NORMAL MAX: 9.1 17.0 29.3 47.1 61.5 67.0 71.1 69.0 60.1 48.4 27.7 14.4  
 NORMAL MIN: -10.3 -3.8 5.0 24.0 36.7 43.5 47.8 45.3 37.2 28.2 10.8 -3.5  
 ESTIMATED  
 NORMAL MAX: 9.5 13.8 26.0 43.0 60.2 72.4 77.5 73.5 61.2 44.2 27.1 14.4  
 NORMAL MIN: -9.1 -0.0 3.5 18.5 34.5 47.1 53.0 50.5 40.4 25.3 9.4 -3.2

	P	E	J	M	S	A
120	132	157	183	203	217	
121	133	158	183	203	217	
122	133	158	183	203	217	
123	134	158	183	203	217	
124	135	159	183	203	217	
125	135	159	183	203	217	
126	136	159	183	203	217	
127	137	160	183	203	217	
128	138	160	183	203	217	
129	139	161	183	203	217	
130	139	161	183	203	217	
131	140	162	183	203	217	
132	141	162	183	203	217	
133	142	163	183	203	217	
134	143	163	183	203	217	
135	144	163	183	203	217	
136	145	164	183	203	217	
137	145	164	183	203	217	
138	147	165	183	203	217	
139	147	165	183	203	217	
140	148	165	183	203	217	
141	149	166	183	203	217	
142	150	166	183	203	217	
143	151	167	183	203	217	
144	151	167	183	203	217	
145	152	167	183	203	217	
146	153	168	183	203	217	
147	154	168	183	203	217	
148	155	169	183	203	217	
149	156	170	183	203	217	
150	157	170	183	203	217	

CROP STAGE JULIAN DATES FOR CROP: S\* DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: ALBERTA NORTH  
 LATITUDE: 57.00  
 OBSERVED

NORMAL MAX:	9.1	17.8	29.3	47.1	61.5	67.6	71.1	69.6	60.1	48.9	27.7	14.9
NORMAL MIN:	-10.3	-3.8	6.6	24.0	36.7	43.5	47.8	45.3	37.2	26.2	10.8	-3.5
ESTIMATED												
NORMAL MAX:	9.5	13.8	26.0	43.0	60.2	72.9	77.8	73.5	61.2	44.6	27.1	14.4
NORMAL MIN:	-9.1	-6.0	3.5	18.5	34.5	47.1	53.0	50.5	40.4	25.3	9.4	-3.2

	P	E	J	M	S	R
150	158	173	196	217	231	
151	159	176	197	217	232	
152	160	177	197	218	233	
153	161	177	198	219	233	
154	162	178	199	220	234	
155	163	179	200	221	235	
156	164	180	201	222	236	
157	165	181	201	223	237	
158	166	182	202	224	238	
159	167	183	203	225	239	
160	167	184	203	225	240	
161	168	185	204	226	241	
162	169	185	205	227	242	
163	170	186	206	228	243	
164	171	187	207	229	244	
165	172	187	207	230	245	
166	173	188	208	231	246	
167	174	189	209	232	247	
168	175	190	210	233	248	
169	176	191	211	234	249	
170	177	192	212	235	250	
171	178	193	213	236	251	
172	179	194	214	237	252	
173	179	195	215	238	253	
174	180	195	216	239	254	
175	181	197	217	240	255	
176	182	198	218	241	256	
177	183	199	219	242	257	
178	184	200	220	243	258	
179	185	201	221	244	259	

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CROP STAGE JULIAN DATES FOR CROP: S4 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON GMS MODEL

LOCATION: ALBERTA NORTH: BEAVER LODGE  
 LATITUDE: 55.20

UNSERVED														
NORMAL MAX:	9.1	17.8	24.3	27.1	31.5	37.0	41.1	44.0	40.1	48.4	27.7	14.9		
NORMAL MIN:	-10.3	-3.8	6.6	24.6	36.7	43.5	47.8	45.3	37.2	28.2	10.8	-3.5		
ESTIMATED														
NORMAL MAX:	9.5	13.8	20.0	23.0	29.2	32.4	37.8	43.5	41.2	44.2	27.1	14.9		
NORMAL MIN:	-9.1	-6.6	3.5	10.5	34.5	47.1	53.0	50.5	40.4	25.3	9.4	-3.2		

	P	E	J	M	S	A
1	95	157	183	203	217	217
2	95	157	183	203	217	217
3	95	157	183	203	217	217
4	95	157	183	203	217	217
5	95	157	183	203	217	217
6	95	157	183	203	217	217
7	95	157	183	203	217	217
8	95	157	183	203	217	217
9	95	157	183	203	217	217
10	95	157	183	203	217	217
11	95	157	183	203	217	217
12	95	157	183	203	217	217
13	95	157	183	203	217	217
14	95	157	183	203	217	217
15	95	157	183	203	217	217
16	95	157	183	203	217	217
17	95	157	183	203	217	217
18	95	157	183	203	217	217
19	95	157	183	203	217	217
20	95	157	183	203	217	217
21	95	157	183	203	217	217
22	95	157	183	203	217	217
23	95	157	183	203	217	217
24	95	157	183	203	217	217
25	95	157	183	203	217	217
26	95	157	183	203	217	217
27	95	157	183	203	217	217
28	95	157	183	203	217	217
29	95	157	183	203	217	217
30	95	157	183	203	217	217
31	95	157	183	203	217	217
32	95	157	183	203	217	217
33	95	157	183	203	217	217
34	95	157	183	203	217	217
35	95	157	183	203	217	217
36	95	157	183	203	217	217
37	95	157	183	203	217	217
38	95	157	183	203	217	217
39	95	157	183	203	217	217
40	95	157	183	203	217	217
41	95	157	183	203	217	217
42	95	157	183	203	217	217
43	95	157	183	203	217	217
44	95	157	183	203	217	217
45	95	157	183	203	217	217
46	95	157	183	203	217	217
47	95	157	183	203	217	217
48	95	157	183	203	217	217
49	95	157	183	203	217	217
50	95	157	183	203	217	217
51	95	157	183	203	217	217
52	95	157	183	203	217	217
53	95	157	183	203	217	217
54	95	157	183	203	217	217
55	95	157	183	203	217	217
56	95	157	183	203	217	217
57	95	157	183	203	217	217
58	95	157	183	203	217	217
59	95	157	183	203	217	217
60	95	157	183	203	217	217
61	95	157	183	203	217	217
62	95	157	183	203	217	217
63	95	157	183	203	217	217
64	95	157	183	203	217	217
65	95	157	183	203	217	217
66	95	157	183	203	217	217
67	95	157	183	203	217	217
68	95	157	183	203	217	217
69	95	157	183	203	217	217
70	95	157	183	203	217	217
71	95	157	183	203	217	217
72	95	157	183	203	217	217
73	95	157	183	203	217	217
74	95	157	183	203	217	217
75	95	157	183	203	217	217
76	95	157	183	203	217	217
77	95	157	183	203	217	217
78	95	157	183	203	217	217
79	95	157	183	203	217	217
80	95	157	183	203	217	217
81	95	157	183	203	217	217
82	95	157	183	203	217	217
83	95	157	183	203	217	217
84	95	157	183	203	217	217
85	95	157	183	203	217	217
86	95	157	183	203	217	217
87	95	157	183	203	217	217
88	95	157	183	203	217	217
89	95	157	183	203	217	217
90	95	157	183	203	217	217
91	95	157	183	203	217	217
92	95	157	183	203	217	217
93	95	157	183	203	217	217
94	95	157	183	203	217	217
95	95	157	183	203	217	217
96	95	157	183	203	217	217
97	95	157	183	203	217	217
98	95	157	183	203	217	217
99	95	157	183	203	217	217
100	95	157	183	203	217	217

64

CROP STAGE JULIA. DATES FOR CROP: SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON EMTS MODEL

LOCATION: ALBERTA NORTH: BELVER LODGE  
 LATITUDE: 55.20  
 (UNSERVE)

NORMAL MAX:	9.1	17.0	24.3	41.1	61.5	67.0	71.1	64.0	60.1	48.4	27.7	14.4
NORMAL MIN:	-10.3	-3.0	0.6	24.6	36.7	43.5	47.5	45.3	37.2	29.2	10.0	-3.5
ESTIMATED												
NORMAL MAX:	9.5	13.4	20.0	43.0	60.2	72.9	77.0	73.5	61.2	44.2	27.1	14.4
NORMAL MIN:	-4.1	-0.6	3.3	18.5	34.5	47.1	53.0	50.5	40.4	29.3	7.4	-3.2

	P	E	J	M	S	A
125	136	100	185	205	219	
126	135	100	185	205	219	
127	137	101	185	206	220	
128	135	101	185	205	220	
129	134	102	180	206	220	
130	134	100	180	207	220	
131	140	103	180	207	221	
132	141	103	187	208	221	
133	142	104	187	208	222	
134	143	104	188	208	222	
135	144	105	188	209	222	
136	145	105	189	209	222	
137	145	106	189	210	223	
138	147	107	190	210	224	
139	147	107	190	211	224	
140	148	108	191	211	225	
141	149	109	191	212	225	
142	150	109	192	213	226	
143	151	110	192	213	227	
144	152	111	193	214	227	
145	153	112	194	215	228	
146	154	113	194	216	228	
147	155	113	195	216	229	
148	156	114	196	217	231	
149	157	115	196	218	232	
150	158	116	197	219	233	
151	159	117	197	220	233	
152	160	117	198	220	234	
153	161	118	199	221	235	
154	162	119	200	222	235	

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN SE

LATITUDE: 49.70

OBSERVED

NORMAL MAX: 10.8 16.2 27.7 48.0 63.3 71.4 79.0 76.5 65.1 52.9 30.9 16.0

NORMAL MIN: -8.1 -4.0 7.9 26.6 38.1 47.3 52.9 50.0 39.7 29.8 13.8 0.3

ESTIMATED

NORMAL MAX: 10.9 14.2 26.2 43.5 61.9 76.1 82.4 79.1 67.1 49.7 31.4 17.2

NORMAL MIN: -6.6 -4.5 5.4 20.3 36.5 49.4 55.6 53.6 43.7 28.7 12.6 -0.3

	P	E	J	M	S	R
90	127	157	181	201	212	
91	127	157	181	201	212	
92	127	157	181	201	212	
93	127	157	181	201	212	
94	127	157	181	201	212	
95	127	157	181	201	212	
96	127	157	181	201	212	
97	127	157	181	201	212	
98	127	157	181	201	212	
99	127	157	181	201	212	
100	127	157	181	201	212	
101	127	157	181	201	212	
102	127	157	181	201	212	
103	127	157	181	201	212	
104	127	157	181	201	212	
105	127	157	181	201	212	
106	127	157	181	201	212	
107	127	157	181	201	212	
108	127	157	181	201	212	
109	127	157	181	201	212	
110	127	157	181	201	212	
111	127	157	181	201	212	
112	127	157	181	201	212	
113	128	157	181	201	212	
114	128	157	181	201	212	
115	128	157	181	201	212	
116	129	158	182	202	212	
117	129	158	182	202	212	
118	130	158	182	202	213	
119	131	158	182	202	213	

Colo

CROP STAGE JULIAN DATES FOR CROP: S4 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON DMS. MODEL

LOCATION: SASKATCHEWAN SE  
 LATITUDE: 49.70  
 OBSERVED

NORMAL MAX:	10.6	16.2	27.7	48.0	63.3	71.4	79.0	76.5	65.1	52.9	30.9	16.0
NORMAL MIN:	-8.1	-4.0	7.9	26.6	38.1	47.3	52.9	50.0	39.7	29.8	13.8	0.3
ESTIMATED												
NORMAL MAX:	10.9	14.2	26.2	43.6	61.9	76.1	82.4	79.1	67.1	49.7	31.4	17.2
NORMAL MIN:	-6.6	-4.5	5.4	20.3	36.5	49.4	55.6	53.6	43.7	28.7	12.6	-0.3

P	E	J	J	S	R
120	131	159	182	202	213
121	132	160	183	203	214
122	133	161	184	204	215
123	134	162	185	205	216
124	135	163	186	206	217
125	136	164	187	207	218
126	137	165	188	208	219
127	138	166	189	209	220
128	139	167	190	210	221
129	140	168	191	211	222
130	141	169	192	212	223
131	142	170	193	213	224
132	143	171	194	214	225
133	144	172	195	215	226
134	145	173	196	216	227
135	146	174	197	217	228
136	147	175	198	218	
137	148	176	199	219	
138	149	177	200	220	
139	150	178	201	221	
140	151	179	202	222	
141	152	180	203	223	
142	153	181	204	224	
143	154	182	205	225	
144	155	183	206	226	
145	156	184	207	227	
146	157	185	208	228	

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO W. ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN SE  
 LATITUDE: 49.70  
 UNSERVED

NORMAL MAX:	10.8	10.2	27.7	48.0	63.3	71.4	79.0	78.5	65.1	52.9	30.9	18.0
NORMAL MIN:	-8.1	-4.0	7.4	20.0	38.1	47.3	52.9	50.0	39.7	29.8	13.8	-0.3
ESTIMATED												
NORMAL MAX:	10.9	14.2	26.2	43.6	61.9	76.1	82.4	79.1	67.1	49.7	31.4	17.2
NORMAL MIN:	-6.6	-4.5	5.4	20.3	36.5	49.4	55.6	53.6	43.7	28.7	12.0	-0.3

P	E	J	M	S	N
150	158	177	197	216	228
151	159	178	198	219	229
152	160	179	199	219	230
153	161	179	199	220	231
154	161	180	200	221	232
155	162	181	200	222	233
156	163	182	201	222	233
157	164	183	201	223	234
158	165	183	203	223	235
159	166	184	203	224	236
160	167	185	204	224	237
161	168	185	205	225	238
162	169	187	205	225	239
163	170	188	207	226	240
164	171	189	208	226	241
165	172	190	209	227	242
166	173	190	210	228	243
167	173	191	211	228	244
168	174	192	212	229	245
169	175	193	213	229	246
170	176	194	214	230	247
171	177	195	215	230	248
172	178	196	216	231	249
173	179	197	217	231	250
174	180	198	218	232	251
175	181	199	219	232	252
176	182	200	221	233	253
177	183	201	222	233	254
178	184	202	223	234	255
179	185	203	224	234	256

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASRATCHEWAN SE: INDIAN HEAD

LATITUDE: 50.60

OBSERVED

NORMAL MAX: 10.8 16.2 27.7 46.0 63.3 71.4 79.0 76.5 65.1 52.9 30.9 18.0

NORMAL MIN: -8.1 -4.0 7.9 20.6 38.1 47.3 52.9 50.0 39.7 29.8 13.8 0.3

ESTIMATED

NORMAL MAX: 10.9 14.2 26.2 43.6 61.9 76.1 82.4 79.1 67.1 49.7 31.4 17.2

NORMAL MIN: -6.6 -4.5 5.4 20.3 36.5 49.4 55.6 53.6 43.7 28.7 12.6 -0.3

P	E	J	M	S	R
100	127	156	180	200	211
101	127	156	180	200	211
102	127	156	180	200	211
103	127	156	180	200	211
104	127	156	180	200	211
105	127	156	180	200	211
106	127	156	180	200	211
107	127	156	180	200	211
108	127	156	180	200	211
109	127	156	180	200	211
110	127	156	180	200	211
111	127	156	181	200	211
112	127	157	181	200	211
113	128	157	181	200	211
114	128	157	181	200	211
115	128	157	181	200	211
116	129	157	181	201	211
117	129	157	181	201	211
118	130	158	181	201	211
119	131	158	181	201	211
120	131	158	181	201	211
121	132	159	182	201	211
122	133	159	182	202	211
123	133	159	182	202	211
124	134	160	183	202	211
125	135	160	183	203	211
126	136	161	184	203	211
127	137	161	184	204	211
128	137	161	184	204	211
129	138	162	184	204	211



CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM  
 CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN RA  
 LATITUDE: 50.00

UNOBSERVED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	11.8	17.2	28.6	49.8	64.9	72.3	80.2	78.3	66.7	54.0	32.4	19.2
NORMAL MIN:	-7.2	-2.9	9.0	27.0	38.3	47.3	52.7	50.0	40.1	29.5	14.2	1.0
ESTIMATED												
NORMAL MAX:	12.0	15.2	27.3	44.8	63.3	77.6	84.0	80.7	68.7	51.1	32.7	18.3
NORMAL MIN:	-5.7	-3.5	6.4	21.2	37.0	49.5	55.5	53.3	43.4	28.6	12.8	0.3

P	E	J	H	S	R
90	124	155	179	198	209
91	124	155	179	198	209
92	124	155	179	198	209
93	124	155	179	198	209
94	124	155	179	198	209
95	124	155	179	198	209
96	124	155	179	198	209
97	124	155	179	198	209
98	124	155	179	198	209
99	124	155	179	198	209
100	124	155	179	198	209
101	124	155	179	198	209
102	124	155	179	198	209
103	124	155	179	198	209
104	124	155	179	198	209
105	124	155	179	198	209
106	125	155	179	198	209
107	125	155	179	198	209
108	125	155	179	198	209
109	125	155	179	198	209
110	125	155	179	198	209
111	126	156	179	199	209
112	126	156	179	199	210
113	126	156	180	199	210
114	127	156	180	199	210
115	127	156	180	199	210
116	128	157	180	199	210
117	129	157	180	199	210
118	129	157	180	200	210
119	130	157	181	200	211

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CROP STAGE JULIA DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN RR

LATITUDE: 50.00

OBSERVED

NORMAL MAX: 11.6 17.2 28.0 49.8 64.9 72.3 80.2 78.3 66.7 54.0 32.4 19.2

NORMAL MIN: -7.2 -2.9 9.0 27.0 38.3 47.3 52.7 50.0 40.1 29.5 14.2 1.0

ESTIMATED

NORMAL MAX: 12.0 15.2 27.3 44.8 63.3 77.0 84.0 80.7 68.7 51.1 32.7 18.3

NORMAL MIN: -5.7 -3.5 6.4 21.2 37.0 49.5 55.5 53.3 43.4 28.6 12.8 0.3

P	E	J	M	S	X
120	131	158	181	200	211
121	131	158	181	200	211
122	132	158	181	200	211
123	133	159	182	201	211
124	134	159	182	201	212
125	134	160	182	201	212
126	135	160	183	202	212
127	136	161	183	202	213
128	137	161	183	202	213
129	138	162	184	203	213
130	139	162	184	203	214
131	140	163	184	204	214
132	141	163	185	204	215
133	141	164	185	205	215
134	142	165	186	205	216
135	143	165	186	206	216
136	144	166	187	206	217
137	145	167	187	207	217
138	145	167	188	207	218
139	147	168	189	208	218
140	148	169	189	208	219
141	149	170	190	209	220
142	150	170	190	210	220
143	151	171	191	211	221
144	152	172	192	211	222
145	153	173	192	212	223
146	154	174	193	213	223
147	155	175	194	214	224
148	156	175	195	214	225
149	157	176	195	215	226

CROP STAGE JULIAN DATES FOR CROP: S<sub>2</sub> DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN RW  
 LATITUDE: 50.00

UNSERVED																				
NORMAL MAX:	11.8	17.2	28.6	49.8	64.9	72.3	80.2	78.3	66.7	54.0	32.4	19.2								
NORMAL MIN:	-7.2	-2.9	9.0	27.0	38.3	47.3	52.7	50.0	40.1	29.5	14.2	1.0								
ESTIMATED																				
NORMAL MAX:	12.0	15.2	27.3	44.8	63.3	77.6	84.0	80.7	68.7	51.1	32.7	18.3								
NORMAL MIN:	-5.7	-3.5	8.4	21.2	37.0	49.5	55.5	53.3	43.4	28.6	12.8	0.3								

P	E	J	M	S	R
150	158	177	196	216	227
151	159	178	197	217	227
152	160	178	197	218	228
153	161	179	198	218	228
154	161	180	199	219	229
155	162	181	200	220	231
156	163	182	201	221	232
157	164	183	201	222	233
158	165	183	202	223	234
159	166	184	203	224	235
160	167	185	204	225	236
161	168	186	205	226	237
162	169	187	205	227	238
163	170	188	206	228	240
164	171	189	207	230	241
165	172	190	208	231	243
166	173	191	209	232	244
167	174	191	210	234	246
168	175	192	211	235	247
169	176	193	212	237	249
170	177	194	213	238	251
171	178	195	214	240	254
172	179	196	216	242	256
173	180	197	217	244	259
174	181	198	218	246	262
175	182	199	219	249	266
176	183	200	220	251	270
177	184	201	221	254	274
178	185	202	223	258	278
179	186	204	224	262	283

GROUP STAGE JULIAN DATES FOR CROPS SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN PROVINCE

LATITUDE: 50.47

OBSERVED

NORMAL MAX: 11.8 17.2 28.6 49.8 64.9 72.3 80.2 78.3 66.7 54.0 32.4 19.2

NORMAL MIN: -7.2 -2.9 9.0 27.0 38.3 47.3 52.7 50.0 40.1 29.5 14.2 1.0

ESTIMATED

NORMAL MAX: 12.0 15.2 27.3 44.8 63.3 77.6 84.0 80.7 68.7 51.1 32.7 18.3

NORMAL MIN: -5.7 -3.5 6.4 21.2 37.0 49.5 55.5 53.3 43.4 28.6 12.8 0.3

	P	E	J	H	S	R
90	124	155	179	198	209	
91	124	155	179	198	209	
92	124	155	179	198	209	
93	124	155	179	198	209	
94	124	155	179	198	209	
95	124	155	179	198	209	
96	124	155	179	198	209	
97	124	155	179	198	209	
98	124	155	179	198	209	
99	124	155	179	198	209	
100	124	155	179	198	209	
101	124	155	179	198	209	
102	124	155	179	198	209	
103	124	155	179	198	209	
104	124	155	179	198	209	
105	124	155	179	198	209	
106	125	155	179	198	209	
107	125	155	179	198	209	
108	125	155	179	198	209	
109	125	155	179	198	209	
110	125	155	179	198	209	
111	125	155	179	198	209	
112	126	155	179	198	209	
113	127	155	179	198	209	
114	127	155	179	198	209	
115	127	155	179	198	209	
116	128	155	179	198	209	
117	129	155	179	198	209	
118	129	155	179	198	209	
119	130	155	179	198	209	

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-BMTS MODEL

LOCATION: SASKATCHEWAN PROVINCE CANADA

LATITUDE: 50.47

OBSERVED

NORMAL MAX: 11.8 17.2 28.6 49.8 64.9 72.3 80.2 78.3 66.7 54.0 32.4 19.2

NORMAL MIN: -7.2 -2.9 9.0 27.0 38.3 47.3 52.7 50.0 40.1 29.5 14.2 1.0

ESTIMATED

NORMAL MAX: 12.0 15.2 27.3 44.8 63.3 77.6 84.0 80.7 68.7 51.1 32.7 18.3

NORMAL MIN: -5.7 -3.5 6.4 21.2 37.0 49.5 55.5 53.3 43.4 28.8 12.8 0.3

P	E	J	M	S	N
120	131	158	181	200	210
121	131	158	181	200	211
122	132	158	181	200	211
123	133	159	181	200	211
124	134	159	182	201	211
125	134	160	182	201	211
126	135	160	182	201	211
127	135	161	183	202	211
128	137	161	183	202	211
129	138	162	183	202	211
130	139	162	184	203	211
131	140	163	184	203	211
132	141	163	185	204	211
133	141	164	185	204	211
134	142	165	186	205	211
135	143	165	186	205	211
136	144	166	187	206	211
137	145	167	187	206	211
138	145	167	188	207	211
139	147	168	188	207	211
140	148	169	189	208	211
141	149	169	189	208	211
142	150	170	190	209	211
143	151	171	191	210	211
144	152	172	191	211	211
145	153	173	192	212	211
146	154	173	193	212	211
147	155	174	194	213	211
148	155	175	194	214	211
149	157	176	195	215	211

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON GMTS. MODEL

LOCATION: SASKATCHEWAN SC  
 LATITUDE: 50.40  
 OBSERVED:

NORMAL MAX:	15.7	21.6	31.6	50.9	64.9	72.0	81.0	78.6	67.1	55.0	35.1	23.5
NORMAL MIN:	-3.3	1.0	11.8	27.7	38.8	47.1	52.3	49.3	40.1	30.0	15.4	4.5
ESTIMATED												
NORMAL MAX:	16.8	19.9	31.1	47.2	64.1	77.1	82.9	79.8	68.6	52.4	35.6	22.5
NORMAL MIN:	-1.8	0.5	9.7	23.4	37.8	49.1	54.3	52.0	42.8	29.1	14.7	3.4

	P	F	J	M	A	M	J	J	A	S	O	N	D	R
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ORIGINAL PAGE IS OF POOR QUALITY

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN SC  
 LATITUDE: 50.40

OBSERVED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	16.7	21.6	31.6	50.9	64.9	72.0	81.0	78.6	67.1	55.0	35.1	23.5
NORMAL MIN:	-3.3	1.0	11.8	27.7	38.8	47.1	52.3	49.5	40.1	30.0	15.4	4.5
ESTIMATED												
NORMAL MAX:	16.8	19.9	31.1	47.2	64.1	77.1	82.9	79.8	68.6	52.4	35.5	22.5
NORMAL MIN:	-1.8	0.5	9.7	23.4	37.8	49.1	54.3	52.0	42.8	29.1	14.7	3.4

P E J H S R

Year	P	E	J	H	S	R
79	2	2	2	2	2	2
78	2	2	2	2	2	2
77	2	2	2	2	2	2
76	2	2	2	2	2	2
75	2	2	2	2	2	2
74	2	2	2	2	2	2
73	2	2	2	2	2	2
72	2	2	2	2	2	2
71	2	2	2	2	2	2
70	2	2	2	2	2	2
69	2	2	2	2	2	2
68	2	2	2	2	2	2
67	2	2	2	2	2	2
66	2	2	2	2	2	2
65	2	2	2	2	2	2
64	2	2	2	2	2	2
63	2	2	2	2	2	2
62	2	2	2	2	2	2
61	2	2	2	2	2	2
60	2	2	2	2	2	2
59	2	2	2	2	2	2
58	2	2	2	2	2	2
57	2	2	2	2	2	2
56	2	2	2	2	2	2
55	2	2	2	2	2	2
54	2	2	2	2	2	2
53	2	2	2	2	2	2
52	2	2	2	2	2	2
51	2	2	2	2	2	2
50	2	2	2	2	2	2
49	2	2	2	2	2	2
48	2	2	2	2	2	2
47	2	2	2	2	2	2
46	2	2	2	2	2	2
45	2	2	2	2	2	2
44	2	2	2	2	2	2
43	2	2	2	2	2	2
42	2	2	2	2	2	2
41	2	2	2	2	2	2
40	2	2	2	2	2	2
39	2	2	2	2	2	2
38	2	2	2	2	2	2
37	2	2	2	2	2	2
36	2	2	2	2	2	2
35	2	2	2	2	2	2
34	2	2	2	2	2	2
33	2	2	2	2	2	2
32	2	2	2	2	2	2
31	2	2	2	2	2	2
30	2	2	2	2	2	2
29	2	2	2	2	2	2
28	2	2	2	2	2	2
27	2	2	2	2	2	2
26	2	2	2	2	2	2
25	2	2	2	2	2	2
24	2	2	2	2	2	2
23	2	2	2	2	2	2
22	2	2	2	2	2	2
21	2	2	2	2	2	2
20	2	2	2	2	2	2
19	2	2	2	2	2	2
18	2	2	2	2	2	2
17	2	2	2	2	2	2
16	2	2	2	2	2	2
15	2	2	2	2	2	2
14	2	2	2	2	2	2
13	2	2	2	2	2	2
12	2	2	2	2	2	2
11	2	2	2	2	2	2
10	2	2	2	2	2	2
9	2	2	2	2	2	2
8	2	2	2	2	2	2
7	2	2	2	2	2	2
6	2	2	2	2	2	2
5	2	2	2	2	2	2
4	2	2	2	2	2	2
3	2	2	2	2	2	2
2	2	2	2	2	2	2
1	2	2	2	2	2	2

CROP STAGE JULIAN DATES FOR CROP: S4 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN SCISWIFT CURRENT  
 LATITUDE: 50.40  
 OBSERVED

NORMAL MAX:	15.7	21.6	31.5	50.9	64.9	72.0	81.0	78.6	67.1	55.0	35.1	23.5
NORMAL MIN:	-3.3	1.0	11.8	27.7	38.8	47.1	52.3	49.5	40.1	30.0	15.4	4.5
ESTIMATED												
NORMAL MAX:	16.8	19.9	31.1	47.2	64.1	77.1	82.9	79.8	68.6	52.4	35.5	22.5
NORMAL MIN:	-1.8	0.5	9.7	23.4	37.0	49.1	54.3	52.0	42.8	29.1	14.7	3.4

	P	E	J	H	S	R
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC RECORDS APPLIED TO A ROBERTSON GMS MODEL

LOCATION: SASKATCHEWAN SC: SWIFT CURRENT

LATITUDE: 50.41

OBSERVED

NORMAL MAX: 16.7 21.6 31.0 30.9 64.9 72.0 81.0 74.5 67.1 55.0 35.1 23.4

NORMAL MIN: -3.3 1.0 11.8 27.7 38.8 47.1 52.3 49.5 40.1 30.0 15.4 4.5

ESTIMATED

NORMAL MAX: 16.0 19.9 31.1 47.2 64.1 77.2 82.9 79.7 68.6 52.4 35.5 22.5

NORMAL MIN: -1.8 0.5 9.7 23.3 37.7 49.1 54.3 52.0 42.8 29.1 14.7 3.4

P	E	J	A	S	P
130	134	162	164	204	210
131	139	162	165	204	210
132	140	163	165	205	210
133	141	164	166	205	217
134	142	164	166	206	217
135	143	165	167	206	218
136	144	166	167	207	218
137	145	167	167	207	219
138	146	167	167	208	219
139	147	168	167	209	220
140	147	169	167	209	221
141	148	170	167	210	221
142	150	170	167	211	222
143	151	171	167	212	223
144	152	172	167	212	224
145	153	173	167	213	224
146	154	174	167	214	225
147	155	175	167	215	225
148	156	175	167	216	227
149	157	176	167	216	228
150	158	177	167	217	229
151	159	177	167	217	229
152	160	177	167	217	230
153	161	177	167	217	231
154	162	178	167	217	232
155	162	178	167	217	233
156	163	178	167	217	234
157	164	178	167	217	235
158	165	178	167	217	236
159	166	178	167	217	238

CROP STAGE JULIAN DATES FOR CROP: S4 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN SW  
 LATITUDE: 49.80

OBSERVED														
NORMAL MAX:	18.9	23.7	33.6	51.8	65.1	72.0	81.1	79.0	67.5	55.9	36.7	25.5		
NORMAL MIN:	-2.6	1.9	12.2	27.1	37.4	45.5	50.2	47.3	38.5	28.9	14.9	5.0		
ESTIMATED														
NORMAL MAX:	19.0	22.1	32.9	48.5	64.8	77.3	82.8	79.7	68.9	53.3	37.0	24.5		
NORMAL MIN:	-1.0	1.4	10.2	23.1	36.7	47.3	52.0	49.7	40.9	28.0	14.4	3.8		

	P	E	J	H	S	R
90	110	154	180	200	210	210
91	110	154	180	200	210	210
92	110	154	180	200	210	210
93	110	154	180	200	210	210
94	110	154	180	200	210	210
95	110	154	180	200	210	210
96	110	154	180	200	210	210
97	110	154	180	200	210	210
98	110	154	180	200	210	210
99	110	154	180	200	210	210
00	110	154	180	200	210	210
01	110	154	180	200	210	210
02	110	154	180	200	210	210
03	110	154	180	200	210	210
04	110	154	180	200	210	210
05	110	154	180	200	210	210
06	110	154	180	200	210	210
07	110	154	180	200	210	210
08	110	154	180	200	210	210
09	110	154	180	200	210	210
10	110	154	180	200	210	210
11	110	154	180	200	210	210
12	110	154	180	200	210	210
13	110	154	180	200	210	210
14	110	154	180	200	210	210
15	110	154	180	200	210	210
16	110	154	180	200	210	210
17	110	154	180	200	210	210
18	110	154	180	200	210	210
19	110	154	180	200	210	210

ORIGINAL PAGE IS OF POOR QUALITY

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A. ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN SW  
 LATITUDE: 49.80

OBSERVED													
NORMAL MAX:	18.9	23.7	33.6	51.8	65.1	72.0	81.1	79.0	67.5	55.9	36.7	25.5	
NORMAL MIN:	-2.6	1.9	12.2	27.1	37.4	45.5	50.2	47.3	39.5	26.9	14.9	5.0	
ESTIMATED													
NORMAL MAX:	19.0	22.1	32.9	48.5	64.8	77.3	82.8	79.7	68.9	53.3	37.0	24.5	
NORMAL MIN:	-1.0	1.4	10.2	23.1	36.7	47.3	52.0	49.7	40.9	28.0	14.4	3.8	

	P	E	J	H	S	R
120	130	158	183	200	215	225
121	131	159	184	201	216	226
122	132	160	185	202	217	227
123	133	161	186	203	218	228
124	134	162	187	204	219	229
125	135	163	188	205	220	230
126	136	164	189	206	221	231
127	137	165	190	207	222	232
128	138	166	191	208	223	233
129	139	167	192	209	224	234
130	140	168	193	210	225	235
131	141	169	194	211	226	236
132	142	170	195	212	227	237
133	143	171	196	213	228	238
134	144	172	197	214	229	239
135	145	173	198	215	230	240
136	146	174	199	216	231	241
137	147	175	200	217	232	242
138	148	176	201	218	233	243
139	149	177	202	219	234	244
140	150	178	203	220	235	245
141	151	179	204	221	236	246
142	152	180	205	222	237	247
143	153	181	206	223	238	248
144	154	182	207	224	239	249
145	155	183	208	225	240	250
146	156	184	209	226	241	251
147	157	185	210	227	242	252
148	158	186	211	228	243	253
149	159	187	212	229	244	254

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON GMTS MODEL

LOCATION: SASKATCHEWAN SW  
 LATITUDE: 49.80

OBSERVED													
NORMAL MAX:	18.0	23.7	33.6	51.8	65.1	72.0	81.1	79.0	67.5	55.9	36.7	25.5	
NORMAL MIN:	-2.6	1.9	12.2	27.1	37.4	45.5	50.2	47.3	38.5	28.9	14.9	5.0	
ESTIMATED													
NORMAL MAX:	19.0	22.1	32.9	48.5	64.8	77.3	82.8	79.7	68.9	53.3	37.0	24.5	
NORMAL MIN:	-1.0	1.4	10.2	23.1	36.7	47.3	52.0	49.7	40.9	28.0	14.4	3.8	

	P	E	J	H	S	R
150	158	178	190	221	233	
151	159	179	190	222	235	
152	160	180	191	223	236	
153	161	181	192	224	237	
154	162	182	193	225	238	
155	163	183	193	225	239	
156	164	183	194	227	240	
157	165	184	195	228	241	
158	166	185	196	229	242	
159	167	186	197	230	244	
160	168	187	198	231	245	
161	169	188	199	233	247	
162	170	189	200	234	249	
163	171	190	201	235	250	
164	172	190	201	237	252	
165	172	191	202	238	254	
166	173	192	203	240	257	
167	174	193	204	242	259	
168	175	194	205	244	263	
169	176	195	206	245	267	
170	177	196	207	248	272	
171	178	197	208	250	279	
172	179	198	209	253	286	
173	180	199	210	255	296	
174	181	200	211	256	297	
175	182	201	212	255	117	
176	183	202	213	273	132	
177	184	203	214	108	157	
178	185	204	215	114	158	
179	186	205	216	119	159	

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A. ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN EC

LATITUDE: 51.2°

OBSERVED

NORMAL MAX: 7.7 14.0 25.7 46.2 62.8 70.5 77.4 75.0 63.7 51.1 28.6 14.9

NORMAL MIN: -11.7 -7.2 4.6 25.0 37.4 46.0 51.6 48.6 39.2 29.1 12.2 -2.7

ESTIMATED

NORMAL MAX: 8.0 11.5 23.9 41.9 60.7 75.2 81.6 78.1 65.7 47.7 28.9 14.4

NORMAL MIN: -10.1 -8.3 1.8 17.5 34.6 48.5 55.4 53.6 43.5 27.8 10.7 -3.1

	P	E	J	H	S	R
105	129	159	183	203	221	244
106	129	159	183	203	221	244
107	129	159	183	203	221	244
108	129	159	183	203	221	244
109	129	159	183	203	221	244
110	129	159	183	203	221	244
111	129	159	183	203	221	244
112	129	159	183	203	221	244
113	130	160	184	204	222	245
114	130	160	184	204	222	245
115	130	160	184	204	222	245
116	130	160	184	204	222	245
117	131	160	184	204	222	245
118	131	160	184	204	222	245
119	132	160	184	204	222	245
120	133	160	184	204	222	245
121	133	160	184	204	222	245
122	133	160	184	204	222	245
123	133	160	184	204	222	245
124	135	161	184	204	222	245
125	135	161	184	204	222	245
126	136	161	185	205	223	246
127	137	161	185	205	223	246
128	138	163	185	205	223	246
129	139	163	185	205	223	246
130	140	164	186	206	224	247
131	140	164	186	206	224	247
132	141	164	187	207	224	247
133	142	165	187	207	224	247
134	143	166	187	207	224	247

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN EC

LATITUDE: 51.20

OBSERVED

NORMAL MAX: 7.7 14.0 25.7 46.2 62.8 70.5 77.4 75.0 63.7 51.1 28.6 14.9

NORMAL MIN: -11.7 -7.2 4.6 25.0 37.4 46.0 51.6 48.6 39.2 29.1 12.2 -2.7

ESTIMATED

NORMAL MAX: 8.0 11.5 23.9 41.9 60.7 75.2 81.6 78.1 65.7 47.7 28.9 14.4

NORMAL MIN: -10.1 -8.3 1.8 17.5 34.6 48.5 55.4 53.6 43.5 27.8 10.7 -3.1

	P	E	J	H	S	R
135	144	166	188	202	219	
136	145	167	189	203	219	
137	145	167	189	203	220	
138	146	168	189	203	220	
139	147	169	190	204	221	
140	148	169	190	204	221	
141	149	170	191	205	222	
142	150	171	191	205	222	
143	151	171	191	205	223	
144	152	172	192	206	224	
145	153	173	193	206	224	
146	154	174	194	207	225	
147	155	175	195	207	225	
148	155	175	195	207	227	
149	156	176	196	208	228	
150	156	177	197	208	228	
151	156	178	197	209	229	
152	157	179	198	209	229	
153	157	179	198	209	231	
154	158	180	200	210	232	
155	158	181	200	210	233	
156	158	182	200	210	234	
157	159	183	200	210	235	
158	159	183	200	210	235	
159	160	184	200	210	237	
160	160	185	200	210	238	
161	160	186	200	210	239	
162	160	187	200	210	240	
163	170	187	207	210	241	
164	171	188	207	211	243	

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN CC  
 LATITUDE: 51.5°

OBSERVED												
NORMAL MAX:	9.7	15.8	27.5	49.3	65.1	72.3	79.5	77.4	65.5	52.9	30.7	17.1
NORMAL MIN:	-9.4	-4.5	7.5	26.8	38.5	46.8	52.2	49.5	39.7	29.1	13.1	-0.9
ESTIMATED												
NORMAL MAX:	10.0	13.5	25.9	44.0	62.9	77.4	83.8	80.3	67.8	49.8	30.9	16.4
NORMAL MIN:	-7.8	-5.6	4.6	20.0	36.5	49.6	55.9	53.6	43.4	28.0	11.6	-1.0

	P	E	J	M	S	R
1005	126	155	170	198	200	209
1006	126	155	170	198	200	209
1007	126	155	170	198	200	209
1008	126	155	170	198	200	209
1009	126	155	170	198	200	209
1010	126	155	170	198	200	209
1011	126	155	170	198	200	209
1012	126	155	170	198	200	209
1013	126	155	170	198	200	209
1014	126	155	170	198	200	209
1015	126	155	170	198	200	209
1016	126	155	170	198	200	209
1017	126	155	170	198	200	209
1018	126	155	170	198	200	209
1019	126	155	170	198	200	209
1020	126	155	170	198	200	209
1021	126	155	170	198	200	209
1022	126	155	170	198	200	209
1023	126	155	170	198	200	209
1024	126	155	170	198	200	209
1025	126	155	170	198	200	209
1026	126	155	170	198	200	209
1027	126	155	170	198	200	209
1028	126	155	170	198	200	209
1029	126	155	170	198	200	209
1030	126	155	170	198	200	209
1031	126	155	170	198	200	209
1032	126	155	170	198	200	209
1033	126	155	170	198	200	209
1034	126	155	170	198	200	209

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN CC  
 LATITUDE: 51.50

OBSERVED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	9.7	15.8	27.5	49.3	65.1	72.3	79.5	77.4	65.5	52.9	30.7	17.1
NORMAL MIN:	-9.4	-4.5	7.5	26.8	38.5	46.8	52.2	49.5	39.7	29.1	13.1	-0.9
ESTIMATED												
NORMAL MAX:	10.0	13.5	25.9	44.0	62.9	77.4	83.8	80.3	67.8	49.8	30.9	16.4
NORMAL MIN:	-7.2	-5.6	4.6	20.0	36.5	49.6	55.9	53.6	43.4	28.0	11.6	-1.6

P E J H S R

35	43	65	85	22	25
36	44	66	86	23	26
37	45	67	87	24	27
38	46	68	88	25	28
39	47	69	89	26	29
40	48	70	90	27	30
41	49	71	91	28	31
42	50	72	92	29	32
43	51	73	93	30	33
44	52	74	94	31	34
45	53	75	95	32	35
46	54	76	96	33	36
47	55	77	97	34	37
48	56	78	98	35	38
49	57	79	99	36	39
50	58	80	00	37	40
51	59	81	01	38	41
52	60	82	02	39	42
53	61	83	03	40	43
54	62	84	04	41	44
55	63	85	05	42	45
56	64	86	06	43	46
57	65	87	07	44	47
58	66	88	08	45	48
59	67	89	09	46	49
60	68	90	10	47	50
61	69	91	11	48	51
62	70	92	12	49	52
63	71	93	13	50	53
64	72	94	14	51	54

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CROP STAGE JULIAN DATES FOR CROPS SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN CC: SASKATOON  
 LATITUDE: 52.2°

OBSERVED

NORMAL MAX:	9.7	15.8	27.5	49.3	65.1	72.3	79.5	77.4	65.5	52.9	30.7	17.1
NORMAL MIN:	-9.4	-4.5	7.5	26.8	38.5	46.8	52.2	49.5	39.7	29.1	13.1	-0.9

ESTIMATED

NORMAL MAX:	10.0	13.5	25.9	44.0	62.9	77.4	83.8	80.3	67.8	49.8	30.9	16.4
NORMAL MIN:	-7.8	-5.6	4.6	20.0	36.5	49.6	55.9	53.6	43.4	28.0	11.6	-1.6

	P	F	J	H	S	R
100	11	26	55	178	107	208
101	11	26	55	178	107	208
102	11	26	55	178	107	208
103	11	26	55	178	107	208
104	11	26	55	178	107	208
105	11	26	55	178	107	208
106	11	26	55	178	107	208
107	11	26	55	178	107	208
108	11	26	55	178	107	208
109	11	26	55	178	107	208
110	11	26	55	178	107	208
111	11	26	55	178	107	208
112	11	26	55	178	107	208
113	11	26	55	178	107	208
114	11	26	55	178	107	208
115	11	26	55	178	107	208
116	11	26	55	178	107	208
117	11	26	55	178	107	208
118	11	26	55	178	107	208
119	11	26	55	178	107	208
120	11	26	55	178	107	208
121	11	26	55	178	107	208
122	11	26	55	178	107	208
123	11	26	55	178	107	208
124	11	26	55	178	107	208
125	11	26	55	178	107	208
126	11	26	55	178	107	208
127	11	26	55	178	107	208
128	11	26	55	178	107	208
129	11	26	55	178	107	208
130	11	26	55	178	107	208
131	11	26	55	178	107	208
132	11	26	55	178	107	208
133	11	26	55	178	107	208
134	11	26	55	178	107	208
135	11	26	55	178	107	208
136	11	26	55	178	107	208
137	11	26	55	178	107	208
138	11	26	55	178	107	208
139	11	26	55	178	107	208
140	11	26	55	178	107	208
141	11	26	55	178	107	208
142	11	26	55	178	107	208
143	11	26	55	178	107	208
144	11	26	55	178	107	208
145	11	26	55	178	107	208
146	11	26	55	178	107	208
147	11	26	55	178	107	208
148	11	26	55	178	107	208
149	11	26	55	178	107	208
150	11	26	55	178	107	208
151	11	26	55	178	107	208
152	11	26	55	178	107	208
153	11	26	55	178	107	208
154	11	26	55	178	107	208
155	11	26	55	178	107	208
156	11	26	55	178	107	208
157	11	26	55	178	107	208
158	11	26	55	178	107	208
159	11	26	55	178	107	208
160	11	26	55	178	107	208
161	11	26	55	178	107	208
162	11	26	55	178	107	208
163	11	26	55	178	107	208
164	11	26	55	178	107	208
165	11	26	55	178	107	208
166	11	26	55	178	107	208
167	11	26	55	178	107	208
168	11	26	55	178	107	208
169	11	26	55	178	107	208
170	11	26	55	178	107	208
171	11	26	55	178	107	208
172	11	26	55	178	107	208
173	11	26	55	178	107	208
174	11	26	55	178	107	208
175	11	26	55	178	107	208
176	11	26	55	178	107	208
177	11	26	55	178	107	208
178	11	26	55	178	107	208
179	11	26	55	178	107	208
180	11	26	55	178	107	208
181	11	26	55	178	107	208
182	11	26	55	178	107	208
183	11	26	55	178	107	208
184	11	26	55	178	107	208
185	11	26	55	178	107	208
186	11	26	55	178	107	208
187	11	26	55	178	107	208
188	11	26	55	178	107	208
189	11	26	55	178	107	208
190	11	26	55	178	107	208
191	11	26	55	178	107	208
192	11	26	55	178	107	208
193	11	26	55	178	107	208
194	11	26	55	178	107	208
195	11	26	55	178	107	208
196	11	26	55	178	107	208
197	11	26	55	178	107	208
198	11	26	55	178	107	208
199	11	26	55	178	107	208
200	11	26	55	178	107	208

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CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN CC:SASKATOON  
 LATITUDE: 52.26

OBSERVED														
NORMAL MAX:	9.7	15.8	27.5	49.3	65.1	72.3	79.5	77.4	65.5	52.9	30.7	17.1		
NORMAL MIN:	-9.4	-4.5	7.5	26.8	38.5	46.8	52.2	49.5	39.7	29.1	13.1	-0.9		
ESTIMATED														
NORMAL MAX:	10.0	13.5	25.9	44.0	62.9	77.4	83.8	80.3	67.8	49.8	30.9	16.4		
NORMAL MIN:	-7.8	-2.6	4.6	20.0	36.5	49.6	55.9	53.6	43.4	28.0	11.6	-1.6		

	P	F	J	H	S	R
130	139	162	183	201	221	232
131	141	163	184	202	222	233
132	142	164	185	203	223	234
133	143	165	186	204	224	235
134	144	166	187	205	225	236
135	145	167	188	206	226	237
136	146	168	189	207	227	238
137	147	169	190	208	228	239
138	148	170	191	209	229	240
139	149	171	192	210	230	241
140	150	172	193	211	231	242
141	151	173	194	212	232	243
142	152	174	195	213	233	244
143	153	175	196	214	234	245
144	154	176	197	215	235	246
145	155	177	198	216	236	247
146	156	178	199	217	237	248
147	157	179	200	218	238	249
148	158	180	201	219	239	250
149	159	181	202	220	240	251
150	160	182	203	221	241	252
151	161	183	204	222	242	253
152	162	184	205	223	243	254
153	163	185	206	224	244	255
154	164	186	207	225	245	256
155	165	187	208	226	246	257
156	166	188	209	227	247	258
157	167	189	210	228	248	259
158	168	190	211	229	249	260
159	169	191	212	230	250	261
160	170	192	213	231	251	262
161	171	193	214	232	252	263
162	172	194	215	233	253	264
163	173	195	216	234	254	265
164	174	196	217	235	255	266
165	175	197	218	236	256	267
166	176	198	219	237	257	268
167	177	199	220	238	258	269
168	178	200	221	239	259	270
169	179	201	222	240	260	271
170	180	202	223	241	261	272
171	181	203	224	242	262	273
172	182	204	225	243	263	274
173	183	205	226	244	264	275
174	184	206	227	245	265	276
175	185	207	228	246	266	277
176	186	208	229	247	267	278
177	187	209	230	248	268	279
178	188	210	231	249	269	280
179	189	211	232	250	270	281
180	190	212	233	251	271	282
181	191	213	234	252	272	283
182	192	214	235	253	273	284
183	193	215	236	254	274	285
184	194	216	237	255	275	286
185	195	217	238	256	276	287
186	196	218	239	257	277	288
187	197	219	240	258	278	289
188	198	220	241	259	279	290
189	199	221	242	260	280	291
190	200	222	243	261	281	292
191	201	223	244	262	282	293
192	202	224	245	263	283	294
193	203	225	246	264	284	295
194	204	226	247	265	285	296
195	205	227	248	266	286	297
196	206	228	249	267	287	298
197	207	229	250	268	288	299
198	208	230	251	269	289	300
199	209	231	252	270	290	301
200	210	232	253	271	291	302
201	211	233	254	272	292	303
202	212	234	255	273	293	304
203	213	235	256	274	294	305
204	214	236	257	275	295	306
205	215	237	258	276	296	307
206	216	238	259	277	297	308
207	217	239	260	278	298	309
208	218	240	261	279	299	310
209	219	241	262	280	300	311
210	220	242	263	281	301	312
211	221	243	264	282	302	313
212	222	244	265	283	303	314
213	223	245	266	284	304	315
214	224	246	267	285	305	316
215	225	247	268	286	306	317
216	226	248	269	287	307	318
217	227	249	270	288	308	319
218	228	250	271	289	309	320
219	229	251	272	290	310	321
220	230	252	273	291	311	322
221	231	253	274	292	312	323
222	232	254	275	293	313	324
223	233	255	276	294	314	325
224	234	256	277	295	315	326
225	235	257	278	296	316	327
226	236	258	279	297	317	328
227	237	259	280	298	318	329
228	238	260	281	299	319	330
229	239	261	282	300	320	331
230	240	262	283	301	321	332
231	241	263	284	302	322	333
232	242	264	285	303	323	334
233	243	265	286	304	324	335
234	244	266	287	305	325	336
235	245	267	288	306	326	337
236	246	268	289	307	327	338
237	247	269	290	308	328	339
238	248	270	291	309	329	340
239	249	271	292	310	330	341
240	250	272	293	311	331	342
241	251	273	294	312	332	343
242	252	274	295	313	333	344
243	253	275	296	314	334	345
244	254	276	297	315	335	346
245	255	277	298	316	336	347
246	256	278	299	317	337	348
247	257	279	300	318	338	349
248	258	280	301	319	339	350
249	259	281	302	320	340	351
250	260	282	303	321	341	352
251	261	283	304	322	342	353
252	262	284	305	323	343	354
253	263	285	306	324	344	355
254	264	286	307	325	345	356
255	265	287	308	326	346	357
256	266	288	309	327	347	358
257	267	289	310	328	348	359
258	268	290	311	329	349	360
259	269	291	312	330	350	361
260	270	292	313	331	351	362
261	271	293	314	332	352	363
262	272	294	315	333	353	364
263	273	295	316	334	354	365
264	274	296	317	335	355	366
265	275	297	318	336	356	367
266	276	298	319	337	357	368
267	277	299	320	338	358	369
268	278	300	321	339	359	370
269	279	301	322	340	360	371
270	280	302	323	341	361	372
271	281	303	324	342	362	373
272	282	304	325	343	363	374
273	283	305	326	344	364	375
274	284	306	327	345	365	376
275	285	307	328	346	366	377
276	286	308	329	347	367	378
277	287	309	330	348	368	379
278	288	310	331	349	369	380
279	289	311	332	350	370	381
280	290	312	333	351	371	382
281	291	313	334	352	372	383
282	292	314	335	353	373	384
283	293	315	336	354	374	385
284	294	316	337	355	375	386
285	295	317	338	356	376	387
286	296	318	339	357	377	388
287	297	319	340	358	378	389
288	298	320	341	359	379	390
289	299	321	342	360	380	391
290	300	322	343	361	381	392
291	301	323	344	362	382	393
292	302	324	345	363	383	394
293	303	325	346	364	384	395
294	304	326	347	365	385	396
295	305	327	348	366	386	397
296	306	328	349	367	387	398
297	307	329	350	368	388	399
298	308	330	351	369	389	400
299	309	331	352	370	390	401
300	310	332	353	371	391	402
301	311	333	354	372	392	403
302	312	334	355	373	393	404
303	313	335	356	374	394	405
304	314	336	357	375	395	406
305	315	337	358	376	396	407
306	316	338	359	377	397	408
307	317	339	360	378	398	409
308	318	340	361	379	399	410
309	319	341	362	380	400	411
310	320	342	363	381	401	412
311	321	343	364	382	402	413
312	322	344	365	383	403	414
313	323	345	366	384	404	415
314	324	346	367	385	405	416
315	325	347	368	386	406	417
316	326	348	369	387	407	418
317	327	349	370	388	4	

CROP STAGE JULIAN DATES FOR CROP: S<sub>1</sub> DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN WC

LATITUDE: 51.60

OBSERVED

NORMAL MAX: 10.9 16.9 28.2 48.6 65.1 72.0 79.5 77.0 65.1 53.2 31.3 18.0

NORMAL MIN: -8.1 -3.6 8.1 26.1 37.8 45.9 51.1 48.2 38.8 28.2 12.6 -0.2

ESTIMATED

NORMAL MAX: 11.2 14.6 26.8 44.5 62.9 77.1 83.3 79.8 67.6 50.0 31.6 17.4

NORMAL MIN: -5.8 -4.4 5.5 20.3 36.0 48.4 54.2 51.8 41.9 27.2 11.9 -1.0

	P	E	J	H	S	R
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0

CROP STAGE JULIAN DATES FOR CROP: SW DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN WC  
 LATITUDE: 51.60

OBSERVED

NORMAL MAX:	10.9	16.9	24.2	49.6	45.1	72.0	79.5	77.0	65.1	53.2	31.3	18.0
NORMAL MINI:	-8.1	-3.6	8.1	26.1	37.4	45.9	51.1	48.2	38.8	28.2	12.6	-0.2

ESTIMATED

NORMAL MAX:	11.2	14.6	26.8	44.5	42.9	77.1	83.3	79.8	67.6	50.0	31.6	17.4
NORMAL MINI:	-5.8	-4.4	5.5	20.3	35.0	44.4	54.2	51.8	41.9	27.2	11.5	-1.0

	P	E	J	M	S	A
1	43	65	87	20	24	7
2	44	66	87	20	24	7
3	44	66	87	20	24	7
4	45	67	88	20	24	7
5	45	67	88	20	24	7
6	46	68	88	20	24	7
7	47	68	89	20	24	7
8	47	69	89	20	24	7
9	48	69	89	20	24	7
10	48	70	89	20	24	7
11	49	70	89	20	24	7
12	49	71	89	20	24	7
13	50	71	89	20	24	7
14	50	72	89	20	24	7
15	51	72	89	20	24	7
16	51	73	89	20	24	7
17	52	73	89	20	24	7
18	52	74	89	20	24	7
19	53	74	89	20	24	7
20	53	75	89	20	24	7
21	54	75	89	20	24	7
22	54	76	89	20	24	7
23	55	76	89	20	24	7
24	55	77	89	20	24	7
25	56	77	89	20	24	7
26	56	78	89	20	24	7
27	57	78	89	20	24	7
28	57	79	89	20	24	7
29	58	79	89	20	24	7
30	58	80	89	20	24	7
31	59	80	89	20	24	7
32	59	81	89	20	24	7
33	60	81	89	20	24	7
34	60	82	89	20	24	7
35	61	82	89	20	24	7
36	61	83	89	20	24	7
37	62	83	89	20	24	7
38	62	84	89	20	24	7
39	63	84	89	20	24	7
40	63	85	89	20	24	7
41	64	85	89	20	24	7
42	64	86	89	20	24	7
43	65	86	89	20	24	7
44	65	87	89	20	24	7
45	66	87	89	20	24	7
46	66	88	89	20	24	7
47	67	88	89	20	24	7
48	67	89	89	20	24	7
49	68	89	89	20	24	7
50	68	90	89	20	24	7
51	69	90	89	20	24	7
52	69	91	89	20	24	7
53	70	91	89	20	24	7
54	70	92	89	20	24	7
55	71	92	89	20	24	7
56	71	93	89	20	24	7
57	72	93	89	20	24	7
58	72	94	89	20	24	7
59	73	94	89	20	24	7
60	73	95	89	20	24	7
61	74	95	89	20	24	7
62	74	96	89	20	24	7
63	75	96	89	20	24	7
64	75	97	89	20	24	7
65	76	97	89	20	24	7
66	76	98	89	20	24	7
67	77	98	89	20	24	7
68	77	99	89	20	24	7
69	78	99	89	20	24	7
70	78	100	89	20	24	7
71	79	100	89	20	24	7

ORIGINAL PAGE IS OF POOR QUALITY



CROP STAGE JULIAN DATES FOR CROPS SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN NO: SCOTT

LATITUDE: 52.4°

OBSERVED

NORMAL MAX: 10.9 14.9 28.2 49.6 65.1 72.0 79.5 77.0 65.1 53.2 31.3 18.0

NORMAL MIN: -8.1 -3.6 8.1 26.1 37.8 45.9 51.1 48.2 38.8 28.2 12.6 -0.2

ESTIMATED

NORMAL MAX: 11.7 14.6 26.8 44.5 62.9 77.1 83.3 79.6 67.5 50.0 31.6 17.4

NORMAL MIN: -5.8 -4.6 5.5 20.3 36.0 48.4 54.2 51.8 41.9 27.2 11.5 -1.0

	P	E	J	H	S	R
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

CROP STAGE JULIAN DATES FOR CROP: S. DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN NOBISCOTT  
 LATITUDE: 52.40  
 OBSERVED

NORMAL MAX:	10.9	16.9	24.2	49.6	65.1	72.0	79.5	77.0	65.1	53.2	31.3	14.0
NORMAL MIN:	-8.1	-3.6	4.1	26.1	37.8	45.9	51.1	48.2	38.8	28.2	12.6	-0.2
ESTIMATED												
NORMAL MAX:	11.2	14.6	24.8	44.5	62.9	77.1	83.3	79.3	67.5	50.0	31.2	17.4
NORMAL MIN:	-7.8	-4.4	5.5	20.3	36.0	48.4	54.2	51.5	41.0	27.2	11.5	-1.0

	P	E	J	M	S	R
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49
50	51	52	53	54	55	56
57	58	59	60	61	62	63
64	65	66	67	68	69	70
71	72	73	74	75	76	77
78	79	80	81	82	83	84
85	86	87	88	89	90	91
92	93	94	95	96	97	98
99	100	101	102	103	104	105

CROP STAGE JULIAN DATES FOR CROPS: SO DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN NF

LATITUDE: 52.70

OBSERVED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.9

NORMAL MIN: -13.5 -8.3 3.2 24.4 37.0 45.9 51.6 48.6 39.0 28.8 11.3 -4.7

ESTIMATED

NORMAL MAX: 6.7 18.3 23.4 42.1 61.6 75.1 82.2 74.2 65.2 46.5 27.2 12.5

NORMAL MIN: -11.0 -10.9 0.5 16.7 34.3 48.6 55.8 53.9 43.4 27.2 9.5 -4.5

	P	E	J	M	A	M
110	128	158	181	200	212	
111	128	158	181	200	212	
112	129	158	181	200	212	
113	129	158	181	200	212	
114	129	158	181	200	212	
115	129	158	181	200	212	
116	130	158	182	201	212	
117	130	158	182	201	212	
118	131	159	182	201	212	
119	131	159	182	201	212	
120	132	159	182	201	212	
121	132	159	182	201	213	
122	133	160	182	201	213	
123	134	160	183	202	213	
124	134	160	183	202	213	
125	135	161	183	202	213	
126	135	161	183	202	214	
127	137	161	184	203	214	
128	138	162	184	203	214	
129	138	162	184	203	214	
130	139	163	185	204	215	
131	140	163	185	204	215	
132	141	164	185	204	215	
133	142	164	186	205	216	
134	143	165	186	205	216	
135	144	165	186	205	217	
136	144	166	187	206	217	
137	145	167	187	206	217	
138	145	167	188	207	218	
139	147	168	188	207	218	

CROP STAGE CULTIVATION DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-EMTS MODEL

LOCATION: SASKATCHEWAN NE

LATITUDE: 52.7°

OBSERVED

NORMAL MAX: 5.7 13.5 25.0 45.2 63.3 71.1 77.4 76.8 63.1 50.6 27.3 12.0

NORMAL MIN: -13.5 -8.3 3.2 26.4 37.0 45.9 51.6 47.8 39.0 28.8 11.3 -6.7

ESTIMATED

NORMAL MAX: 5.3 10.3 23.4 42.1 61.6 75.1 82.2 70.2 65.2 48.5 27.2 12.5

NORMAL MIN: -11.0 -10.0 0.5 15.7 34.0 44.6 55.8 53.9 43.4 27.2 4.5 -6.4

	P	F	J	M	A	M
40	60	64	66	68	70	71
41	60	64	66	68	70	71
42	60	64	66	68	70	71
43	60	64	66	68	70	71
44	60	64	66	68	70	71
45	60	64	66	68	70	71
46	60	64	66	68	70	71
47	60	64	66	68	70	71
48	60	64	66	68	70	71
49	60	64	66	68	70	71
50	60	64	66	68	70	71
51	60	64	66	68	70	71
52	60	64	66	68	70	71
53	60	64	66	68	70	71
54	60	64	66	68	70	71
55	60	64	66	68	70	71
56	60	64	66	68	70	71
57	60	64	66	68	70	71
58	60	64	66	68	70	71
59	60	64	66	68	70	71
60	60	64	66	68	70	71
61	60	64	66	68	70	71
62	60	64	66	68	70	71
63	60	64	66	68	70	71
64	60	64	66	68	70	71
65	60	64	66	68	70	71
66	60	64	66	68	70	71
67	60	64	66	68	70	71
68	60	64	66	68	70	71
69	60	64	66	68	70	71
70	60	64	66	68	70	71
71	60	64	66	68	70	71
72	60	64	66	68	70	71
73	60	64	66	68	70	71
74	60	64	66	68	70	71
75	60	64	66	68	70	71
76	60	64	66	68	70	71
77	60	64	66	68	70	71
78	60	64	66	68	70	71
79	60	64	66	68	70	71
80	60	64	66	68	70	71
81	60	64	66	68	70	71
82	60	64	66	68	70	71
83	60	64	66	68	70	71
84	60	64	66	68	70	71
85	60	64	66	68	70	71
86	60	64	66	68	70	71
87	60	64	66	68	70	71
88	60	64	66	68	70	71
89	60	64	66	68	70	71
90	60	64	66	68	70	71
91	60	64	66	68	70	71
92	60	64	66	68	70	71
93	60	64	66	68	70	71
94	60	64	66	68	70	71
95	60	64	66	68	70	71
96	60	64	66	68	70	71
97	60	64	66	68	70	71
98	60	64	66	68	70	71
99	60	64	66	68	70	71
100	60	64	66	68	70	71

ORIGINAL PAGE IS OF POOR QUALITY

CROP STAGE JULIAN DATES FOR CROP: SOYBEAN FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN NE:MELEFORT

LATITUDE: 52.85

OBSERVED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.9

NORMAL MIN: -13.5 -8.3 3.2 24.4 37.0 45.9 51.6 48.5 34.0 25.8 11.3 -4.7

ESTIMATED

NORMAL MAX: 6.3 10.3 23.4 42.1 61.4 75.1 82.2 74.2 65.2 48.5 27.2 12.9

NORMAL MIN: -11.0 -10.0 0.5 16.7 34.3 44.6 55.8 53.9 43.4 27.2 4.5 -4.8

	P	F	J	M	A	M
90	1	2	5	1	2	2
91	1	2	5	1	2	2
92	1	2	5	1	2	2
93	1	2	5	1	2	2
94	1	2	5	1	2	2
95	1	2	5	1	2	2
96	1	2	5	1	2	2
97	1	2	5	1	2	2
98	1	2	5	1	2	2
99	1	2	5	1	2	2
100	1	2	5	1	2	2
101	1	2	5	1	2	2
102	1	2	5	1	2	2
103	1	2	5	1	2	2
104	1	2	5	1	2	2
105	1	2	5	1	2	2
106	1	2	5	1	2	2
107	1	2	5	1	2	2
108	1	2	5	1	2	2
109	1	2	5	1	2	2
110	1	2	5	1	2	2
111	1	2	5	1	2	2
112	1	2	5	1	2	2
113	1	2	5	1	2	2
114	1	2	5	1	2	2
115	1	2	5	1	2	2
116	1	2	5	1	2	2
117	1	2	5	1	2	2
118	1	2	5	1	2	2
119	1	2	5	1	2	2
120	1	2	5	1	2	2

CROP STAGE JULIAN DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN NE:MELEFORT

LATITUDE: 52.85

OBSERVED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.4

NORMAL MIN: -13.5 -8.3 3.2 24.6 37.0 45.9 51.6 48.6 39.0 28.8 11.3 -4.7

ESTIMATED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.4

NORMAL MIN: -11.0 -10.0 1.5 18.7 34.3 42.6 55.8 53.9 43.4 27.2 4.5 -4.8

	P	E	J	A	S	O
1	U	U	U	U	U	U
2	U	U	U	U	U	U
3	U	U	U	U	U	U
4	U	U	U	U	U	U
5	U	U	U	U	U	U
6	U	U	U	U	U	U
7	U	U	U	U	U	U
8	U	U	U	U	U	U
9	U	U	U	U	U	U
10	U	U	U	U	U	U
11	U	U	U	U	U	U
12	U	U	U	U	U	U
13	U	U	U	U	U	U
14	U	U	U	U	U	U
15	U	U	U	U	U	U
16	U	U	U	U	U	U
17	U	U	U	U	U	U
18	U	U	U	U	U	U
19	U	U	U	U	U	U
20	U	U	U	U	U	U
21	U	U	U	U	U	U
22	U	U	U	U	U	U
23	U	U	U	U	U	U
24	U	U	U	U	U	U
25	U	U	U	U	U	U
26	U	U	U	U	U	U
27	U	U	U	U	U	U
28	U	U	U	U	U	U
29	U	U	U	U	U	U
30	U	U	U	U	U	U
31	U	U	U	U	U	U
32	U	U	U	U	U	U
33	U	U	U	U	U	U
34	U	U	U	U	U	U
35	U	U	U	U	U	U
36	U	U	U	U	U	U
37	U	U	U	U	U	U
38	U	U	U	U	U	U
39	U	U	U	U	U	U
40	U	U	U	U	U	U
41	U	U	U	U	U	U
42	U	U	U	U	U	U
43	U	U	U	U	U	U
44	U	U	U	U	U	U
45	U	U	U	U	U	U
46	U	U	U	U	U	U
47	U	U	U	U	U	U
48	U	U	U	U	U	U
49	U	U	U	U	U	U
50	U	U	U	U	U	U
51	U	U	U	U	U	U
52	U	U	U	U	U	U
53	U	U	U	U	U	U
54	U	U	U	U	U	U
55	U	U	U	U	U	U
56	U	U	U	U	U	U
57	U	U	U	U	U	U
58	U	U	U	U	U	U
59	U	U	U	U	U	U
60	U	U	U	U	U	U
61	U	U	U	U	U	U
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91	U	U	U	U	U	U
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96	U	U	U	U	U	U
97	U	U	U	U	U	U
98	U	U	U	U	U	U
99	U	U	U	U	U	U
100	U	U	U	U	U	U

COOP STAGE JULIAN DATES FOR COOP: SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN NE: MELFORT

LATITUDE: 52.85

OBSERVED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.7

NORMAL MIN: -13.5 -9.3 3.2 24.4 37.0 45.9 51.6 48.6 39.0 28.8 11.3 -4.7

ESTIMATED

NORMAL MAX: 5.3 10.3 23.4 42.1 61.4 75.1 82.2 78.2 65.2 48.5 27.2 12.5

NORMAL MIN: -11.9 -10.0 0.5 16.7 34.3 48.6 55.8 53.9 43.4 27.2 4.5 -4.8

	P	F	J	M	A	M
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
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33	1	1	1	1	1	1
34	1	1	1	1	1	1
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36	1	1	1	1	1	1
37	1	1	1	1	1	1
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69	1	1	1	1	1	1
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94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

CROP STAGE JULIAN DATES FOR CROPS SH DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON 4MTS MODEL

LOCATION: SASKATCHEWAN NEIMELFORT

LATITUDE: 53.85

OBSERVED

NORMAL MAX: 5.7 13.5 25.9 46.2 63.3 71.1 77.4 74.8 63.1 50.2 27.3 12.9

NORMAL MIN: -13.5 -8.3 3.2 24.4 37.0 45.9 51.6 48.6 39.0 28.8 11.3 -4.7

ESTIMATED

NORMAL MAX: 5.2 10.3 23.4 42.1 61.4 76.1 82.2 78.2 65.2 46.5 27.2 12.5

NORMAL MIN: -11.0 -10.0 0.5 19.7 36.3 48.6 55.8 53.4 43.4 27.2 9.5 -4.8

	P	E	J	H	S	R
79	U	U	U	U	U	U
78	U	U	U	U	U	U
77	U	U	U	U	U	U
76	U	U	U	U	U	U
75	U	U	U	U	U	U
74	U	U	U	U	U	U
73	U	U	U	U	U	U
72	U	U	U	U	U	U
71	U	U	U	U	U	U
70	U	U	U	U	U	U
69	U	U	U	U	U	U
68	U	U	U	U	U	U
67	U	U	U	U	U	U
66	U	U	U	U	U	U
65	U	U	U	U	U	U
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51	U	U	U	U	U	U
50	U	U	U	U	U	U
49	U	U	U	U	U	U
48	U	U	U	U	U	U
47	U	U	U	U	U	U
46	U	U	U	U	U	U
45	U	U	U	U	U	U
44	U	U	U	U	U	U
43	U	U	U	U	U	U
42	U	U	U	U	U	U
41	U	U	U	U	U	U
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39	U	U	U	U	U	U
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24	U	U	U	U	U	U
23	U	U	U	U	U	U
22	U	U	U	U	U	U
21	U	U	U	U	U	U
20	U	U	U	U	U	U
19	U	U	U	U	U	U
18	U	U	U	U	U	U
17	U	U	U	U	U	U
16	U	U	U	U	U	U
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10	U	U	U	U	U	U
9	U	U	U	U	U	U
8	U	U	U	U	U	U
7	U	U	U	U	U	U
6	U	U	U	U	U	U
5	U	U	U	U	U	U
4	U	U	U	U	U	U
3	U	U	U	U	U	U
2	U	U	U	U	U	U
1	U	U	U	U	U	U

ORIGINAL PAGE IS  
OF POOR QUALITY



CROP STAGE JULIAN DATES FOR CROP: S. (DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL)

LOCATION: SASKATCHEWAN NW

LATITUDE: 52.00

OBSERVED

NORMAL MAX:	7.5	14.9	25.6	46.9	63.3	70.2	76.3	73.4	62.6	50.0	24.0	14.0
NORMAL MIN:	-12.0	-7.8	3.7	24.6	36.5	44.2	49.5	46.4	37.2	27.5	10.9	-4.5
ESTIMATED												
NORMAL MAX:	7.0	11.4	24.5	42.5	61.0	75.2	81.1	77.2	64.5	48.5	27.4	13.4
NORMAL MIN:	-11.4	-9.4	0.0	16.5	33.5	47.2	53.9	51.9	41.7	26.0	9.1	-4.6

	P	F	J	M	A	M	J
1	U	U	U	U	U	U	U
2	U	U	U	U	U	U	U
3	U	U	U	U	U	U	U
4	U	U	U	U	U	U	U
5	U	U	U	U	U	U	U
6	U	U	U	U	U	U	U
7	U	U	U	U	U	U	U
8	U	U	U	U	U	U	U
9	U	U	U	U	U	U	U
10	U	U	U	U	U	U	U
11	U	U	U	U	U	U	U
12	U	U	U	U	U	U	U
13	U	U	U	U	U	U	U
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17	U	U	U	U	U	U	U
18	U	U	U	U	U	U	U
19	U	U	U	U	U	U	U
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21	U	U	U	U	U	U	U
22	U	U	U	U	U	U	U
23	U	U	U	U	U	U	U
24	U	U	U	U	U	U	U
25	U	U	U	U	U	U	U
26	U	U	U	U	U	U	U
27	U	U	U	U	U	U	U
28	U	U	U	U	U	U	U
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34	U	U	U	U	U	U	U
35	U	U	U	U	U	U	U
36	U	U	U	U	U	U	U
37	U	U	U	U	U	U	U
38	U	U	U	U	U	U	U
39	U	U	U	U	U	U	U
40	U	U	U	U	U	U	U
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44	U	U	U	U	U	U	U
45	U	U	U	U	U	U	U
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58	U	U	U	U	U	U	U
59	U	U	U	U	U	U	U
60	U	U	U	U	U	U	U

CROP STAGE JULIAN DATES FOR CROPS SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMIS MODEL

LOCATION: SASKATCHEWAN NW  
 LATITUDE: 53.00

OBSERVED													
NORMAL MAX:	7.5	14.4	20.6	40.9	63.3	70.2	76.3	73.4	62.6	50.0	24.0	14.0	
NORMAL MIN:	-13.3	-7.8	3.7	24.6	36.5	44.2	49.5	46.4	37.2	27.5	10.9	-4.5	
ESTIMATED													
NORMAL MAX:	7.9	11.8	24.5	42.5	61.0	75.2	81.1	77.2	64.5	46.5	27.4	13.8	
NORMAL MIN:	-11.4	-9.4	0.4	16.5	33.5	47.2	53.9	51.9	41.7	26.0	9.1	-4.6	

	P	E	J	H	S	A
1	4	4	6	1	2	2
2	4	4	7	1	2	2
3	4	4	7	1	2	2
4	4	4	7	1	2	2
5	4	4	7	1	2	2
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96	4	4	7	1	2	2
97	4	4	7	1	2	2
98	4	4	7	1	2	2
99	4	4	7	1	2	2
100	4	4	7	1	2	2

CROP STAGE JULIAN DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MANITOBA SF

LATITUDE: 50.00

OBSERVED

NORMAL MAX:	0.5	15.3	24.5	47.5	63.5	73.0	74.5	77.2	65.7	51.1	31.5	16.4
NORMAL MIN:	-9.9	-4.5	7.2	27.3	39.8	50.4	56.1	53.6	43.7	33.3	16.5	-0.4
ESTIMATED												
NORMAL MAX:	10.0	13.3	25.5	43.6	62.4	77.0	83.5	40.2	67.0	49.4	31.1	16.5
NORMAL MIN:	-1.7	-6.4	3.3	14.6	37.5	52.3	60.1	58.7	44.5	32.2	14.3	-0.5

D	F	J	M	A	M
00	00	00	00	00	00
01	00	00	00	00	00
02	00	00	00	00	00
03	00	00	00	00	00
04	00	00	00	00	00
05	00	00	00	00	00
06	00	00	00	00	00
07	00	00	00	00	00
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09	00	00	00	00	00
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12	00	00	00	00	00
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23	00	00	00	00	00
24	00	00	00	00	00
25	00	00	00	00	00
26	00	00	00	00	00
27	00	00	00	00	00
28	00	00	00	00	00
29	00	00	00	00	00
30	00	00	00	00	00
31	00	00	00	00	00
32	00	00	00	00	00
33	00	00	00	00	00
34	00	00	00	00	00
35	00	00	00	00	00
36	00	00	00	00	00
37	00	00	00	00	00
38	00	00	00	00	00
39	00	00	00	00	00
40	00	00	00	00	00
41	00	00	00	00	00
42	00	00	00	00	00
43	00	00	00	00	00
44	00	00	00	00	00
45	00	00	00	00	00
46	00	00	00	00	00
47	00	00	00	00	00
48	00	00	00	00	00
49	00	00	00	00	00
50	00	00	00	00	00
51	00	00	00	00	00
52	00	00	00	00	00
53	00	00	00	00	00
54	00	00	00	00	00
55	00	00	00	00	00
56	00	00	00	00	00
57	00	00	00	00	00
58	00	00	00	00	00
59	00	00	00	00	00
60	00	00	00	00	00
61	00	00	00	00	00
62	00	00	00	00	00
63	00	00	00	00	00
64	00	00	00	00	00
65	00	00	00	00	00
66	00	00	00	00	00
67	00	00	00	00	00
68	00	00	00	00	00
69	00	00	00	00	00
70	00	00	00	00	00

CROP STAGE JULIAN DATES FOR CROPS SO DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON DMS MODEL

LOCATION: MANITOWA SF

LATITUDE: 40.00

OBSERVED

NORMAL MAX: 9.5 15.3 24.6 47.5 63.5 73.0 79.5 77.2 65.7 53.1 31.5 10.9

NORMAL MIN: -9.0 -5.5 7.2 27.3 39.6 50.4 56.1 53.6 43.7 33.3 16.5 -0.4

ESTIMATED

NORMAL MAX: 10.0 3.3 25.0 43.6 62.6 77.0 83.5 80.2 67.9 49.9 31.1 15.5

NORMAL MIN: -14.2 -5.9 1.3 19.6 37.5 52.3 60.1 58.7 48.5 32.2 14.3 -0.5

	D	F	J	A	S	O
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COOL STAGE JULIAN DATES FOR CROP: 52 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: MANITOWA SE

LATITUDE: 50.00

OBSERVED

NORMAL MAX: 10.5 15.3 24.6 47.5 63.5 73.0 79.5 77.2 65.7 53.1 31.5 16.4

NORMAL MIN: -4.0 -5.9 7.2 27.3 39.6 49.4 56.1 53.6 43.7 33.3 16.5 -0.4

ESTIMATED

NORMAL MAX: 11.0 17.3 25.6 43.6 62.6 77.0 83.5 80.2 67.9 54.9 31.1 16.5

NORMAL MIN: -4.3 -5.9 3.3 19.6 37.5 52.3 60.1 55.7 48.5 32.2 14.3 -0.5

	D	F	J	M	A	M
50	55	75	00	00	00	00
51	55	75	00	00	00	00
52	55	75	00	00	00	00
53	55	75	00	00	00	00
54	55	75	00	00	00	00
55	55	75	00	00	00	00
56	55	75	00	00	00	00
57	55	75	00	00	00	00
58	55	75	00	00	00	00
59	55	75	00	00	00	00
60	55	75	00	00	00	00
70	55	75	00	00	00	00
71	55	75	00	00	00	00
72	55	75	00	00	00	00
73	55	75	00	00	00	00
74	55	75	00	00	00	00
75	55	75	00	00	00	00
76	55	75	00	00	00	00
77	55	75	00	00	00	00
78	55	75	00	00	00	00
79	55	75	00	00	00	00

ORIGINAL PAGE IS OF POOR QUALITY

FROM STAGE III DATA DATES FOR GROUP 5, DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MANITOWA SEA-INNEPEG

LATITUDE: 48.44

OBSERVED

NORMAL MAX: 15.3 24.6 47.5 63.5 73.0 79.5 77.2 69.7 53.1 31.5 14.9

NORMAL MIN: -0.0 -24.5 7.2 27.3 39.6 50.4 56.1 53.6 43.7 33.3 16.5 -0.4

ESTIMATED

NORMAL MAX: 14.0 17.3 25.6 43.6 62.4 77.0 83.5 80.2 67.9 46.4 31.1 16.5

NORMAL MIN: -1.3 -24.9 3.3 19.6 37.5 52.3 60.1 58.7 48.5 32.2 14.3 -0.5

	D	F	J	M	S	N
01	70	70	70	70	07	207
02	70	70	70	70	07	207
03	70	70	70	70	07	207
04	70	70	70	70	07	207
05	70	70	70	70	07	207
06	70	70	70	70	07	207
07	70	70	70	70	07	207
08	70	70	70	70	07	207
09	70	70	70	70	07	207
10	70	70	70	70	07	207
11	70	70	70	70	07	207
12	70	70	70	70	07	207
13	70	70	70	70	07	207
14	70	70	70	70	07	207
15	70	70	70	70	07	207
16	70	70	70	70	07	207
17	70	70	70	70	07	207
18	70	70	70	70	07	207
19	70	70	70	70	07	207
20	70	70	70	70	07	207
21	70	70	70	70	07	207
22	70	70	70	70	07	207
23	70	70	70	70	07	207
24	70	70	70	70	07	207
25	70	70	70	70	07	207
26	70	70	70	70	07	207
27	70	70	70	70	07	207
28	70	70	70	70	07	207
29	70	70	70	70	07	207
30	70	70	70	70	07	207
31	70	70	70	70	07	207
32	70	70	70	70	07	207
33	70	70	70	70	07	207
34	70	70	70	70	07	207
35	70	70	70	70	07	207
36	70	70	70	70	07	207
37	70	70	70	70	07	207
38	70	70	70	70	07	207
39	70	70	70	70	07	207
40	70	70	70	70	07	207
41	70	70	70	70	07	207
42	70	70	70	70	07	207
43	70	70	70	70	07	207
44	70	70	70	70	07	207
45	70	70	70	70	07	207
46	70	70	70	70	07	207
47	70	70	70	70	07	207
48	70	70	70	70	07	207
49	70	70	70	70	07	207
50	70	70	70	70	07	207
51	70	70	70	70	07	207
52	70	70	70	70	07	207
53	70	70	70	70	07	207
54	70	70	70	70	07	207
55	70	70	70	70	07	207
56	70	70	70	70	07	207
57	70	70	70	70	07	207
58	70	70	70	70	07	207
59	70	70	70	70	07	207
60	70	70	70	70	07	207
61	70	70	70	70	07	207
62	70	70	70	70	07	207
63	70	70	70	70	07	207
64	70	70	70	70	07	207
65	70	70	70	70	07	207
66	70	70	70	70	07	207
67	70	70	70	70	07	207
68	70	70	70	70	07	207
69	70	70	70	70	07	207
70	70	70	70	70	07	207
71	70	70	70	70	07	207
72	70	70	70	70	07	207
73	70	70	70	70	07	207
74	70	70	70	70	07	207
75	70	70	70	70	07	207
76	70	70	70	70	07	207
77	70	70	70	70	07	207
78	70	70	70	70	07	207
79	70	70	70	70	07	207
80	70	70	70	70	07	207
81	70	70	70	70	07	207
82	70	70	70	70	07	207
83	70	70	70	70	07	207
84	70	70	70	70	07	207
85	70	70	70	70	07	207
86	70	70	70	70	07	207
87	70	70	70	70	07	207
88	70	70	70	70	07	207
89	70	70	70	70	07	207
90	70	70	70	70	07	207
91	70	70	70	70	07	207
92	70	70	70	70	07	207
93	70	70	70	70	07	207
94	70	70	70	70	07	207
95	70	70	70	70	07	207
96	70	70	70	70	07	207
97	70	70	70	70	07	207
98	70	70	70	70	07	207
99	70	70	70	70	07	207
00	70	70	70	70	07	207

COOP STAGE INITIAL DATES FOR COOP: SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MARITONIA SEB-INNEPEG  
 LATITUDE: 69.4  
 OBSERVED

NORMAL MAX:	4.5	15.3	24.6	47.5	43.5	73.0	74.5	77.2	65.7	53.1	31.5	18.4
NORMAL MIN:	-4.0	-26.5	7.2	27.3	39.6	50.4	56.1	53.6	43.7	33.3	15.5	-0.4
ESTIMATED												
NORMAL MAX:	10.0	14.3	25.6	43.6	42.4	77.0	43.5	40.2	47.9	44.4	31.1	18.5
NORMAL MIN:	-4.7	-26.0	7.1	14.6	37.5	52.3	60.1	56.7	44.5	32.2	14.3	-0.5

	D	F	J	M	S	N
20	20	20	20	20	20	20
21	21	21	21	21	21	21
22	22	22	22	22	22	22
23	23	23	23	23	23	23
24	24	24	24	24	24	24
25	25	25	25	25	25	25
26	26	26	26	26	26	26
27	27	27	27	27	27	27
28	28	28	28	28	28	28
29	29	29	29	29	29	29
30	30	30	30	30	30	30
31	31	31	31	31	31	31
32	32	32	32	32	32	32
33	33	33	33	33	33	33
34	34	34	34	34	34	34
35	35	35	35	35	35	35
36	36	36	36	36	36	36
37	37	37	37	37	37	37
38	38	38	38	38	38	38
39	39	39	39	39	39	39
40	40	40	40	40	40	40
41	41	41	41	41	41	41
42	42	42	42	42	42	42
43	43	43	43	43	43	43
44	44	44	44	44	44	44
45	45	45	45	45	45	45
46	46	46	46	46	46	46
47	47	47	47	47	47	47
48	48	48	48	48	48	48
49	49	49	49	49	49	49
50	50	50	50	50	50	50
51	51	51	51	51	51	51
52	52	52	52	52	52	52
53	53	53	53	53	53	53
54	54	54	54	54	54	54
55	55	55	55	55	55	55
56	56	56	56	56	56	56
57	57	57	57	57	57	57
58	58	58	58	58	58	58
59	59	59	59	59	59	59
60	60	60	60	60	60	60
61	61	61	61	61	61	61
62	62	62	62	62	62	62
63	63	63	63	63	63	63
64	64	64	64	64	64	64
65	65	65	65	65	65	65
66	66	66	66	66	66	66
67	67	67	67	67	67	67
68	68	68	68	68	68	68
69	69	69	69	69	69	69
70	70	70	70	70	70	70
71	71	71	71	71	71	71
72	72	72	72	72	72	72
73	73	73	73	73	73	73
74	74	74	74	74	74	74
75	75	75	75	75	75	75

CROP STAGE JULIAN DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-HMFS MODEL

LOCATION: MANITOBA SC

LATITUDE: 49.7°

OBSERVED

NORMAL MAX: 0.5 15.3 24.3 47.8 53.7 72.5 79.5 77.4 65.7 53.2 31.1 17.1

NORMAL MIN: -9.6 -5.6 7.5 27.0 38.8 48.9 54.5 51.8 41.5 31.3 14.7 -0.3

ESTIMATED

NORMAL MAX: 4.9 13.2 25.5 43.5 52.4 77.0 83.6 80.2 67.9 49.9 31.1 16.4

NORMAL MIN: -8.0 -6.1 4.1 20.0 37.1 51.1 58.0 56.1 45.9 30.1 12.9 -1.1

	D	F	J	H	S	R
90	126	156	170	191	204	
91	126	156	170	191	204	
92	126	156	170	191	204	
93	126	156	170	191	204	
94	126	156	170	191	204	
95	126	156	170	191	204	
96	126	156	170	191	204	
97	126	156	170	191	204	
98	126	156	170	191	204	
99	126	156	170	191	204	
100	126	156	170	191	204	
101	126	156	170	191	204	
102	126	156	170	191	204	
103	126	156	170	191	204	
104	126	156	170	191	204	
105	126	156	170	191	204	
106	126	156	170	191	204	
107	126	156	170	191	204	
108	126	156	170	191	204	
109	126	156	170	191	204	
110	127	156	170	191	204	
111	127	156	170	191	204	
112	127	156	170	191	204	
113	127	156	170	191	204	
114	128	156	170	191	204	
115	129	156	170	191	204	
116	129	157	170	191	204	
117	129	157	180	191	204	
118	131	157	180	191	204	
119	131	157	180	191	204	

ORIGINAL PAGE IS OF POOR QUALITY



CROP STAGE JULIAN DATES FOR CROPS BY DIVISION FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MANITOBA SC  
 LATITUDE: 49.7

NORMAL MAX:	10.5	15.3	23.0	47.8	63.7	72.5	74.5	77.4	85.7	93.2	11.1	17.1
NORMAL MIN:	-0.8	-5.6	7.5	27.0	38.8	48.9	54.5	51.8	41.5	31.3	14.2	-0.4
ESTIMATED												
NORMAL MAX:	10.0	17.2	25.5	43.5	62.4	77.0	83.0	80.2	67.9	49.9	31.1	14.4
NORMAL MIN:	-1.0	-4.1	4.1	20.0	37.1	51.1	54.0	56.1	45.9	30.1	12.4	-1.1

	D	F	J	M	A	M
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

CHOP STAGE JULY-TAN DATES FOR CHOP ST. DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-SMITS MODEL

LOCATION: MANITOBA SC

LATITUDE: 49.71

OBSERVED

NORMAL MAX: 0.5 15.7 24.0 47.4 43.7 72.5 74.5 77.6 65.7 53.2 31.1 17.1

NORMAL MIN: -0.4 15.6 7.5 27.0 34.2 44.9 54.5 51.8 41.5 31.3 14.7 -0.9

ESTIMATED

NORMAL MAX: 0.0 17.2 25.5 47.5 42.4 77.0 83.6 80.2 67.9 49.4 31.1 16.4

NORMAL MIN: -0.7 14.1 4.1 29.0 37.1 51.1 58.0 59.1 46.9 30.1 12.9 -1.1

	D	F	J	H	S	M
75	U	U	U	U	U	U
76	U	U	U	U	U	U
77	U	U	U	U	U	U
78	U	U	U	U	U	U
79	U	U	U	U	U	U
80	U	U	U	U	U	U
81	U	U	U	U	U	U
82	U	U	U	U	U	U
83	U	U	U	U	U	U
84	U	U	U	U	U	U
85	U	U	U	U	U	U
86	U	U	U	U	U	U
87	U	U	U	U	U	U
88	U	U	U	U	U	U
89	U	U	U	U	U	U
90	U	U	U	U	U	U
91	U	U	U	U	U	U
92	U	U	U	U	U	U
93	U	U	U	U	U	U
94	U	U	U	U	U	U
95	U	U	U	U	U	U
96	U	U	U	U	U	U
97	U	U	U	U	U	U
98	U	U	U	U	U	U
99	U	U	U	U	U	U
00	U	U	U	U	U	U

CROP STAGE PHILIP DATES FOR CROPS: S+ DERIVED FROM CLIMATIC NORMALS APPLIED TO A PHILIP-TSUN-HMFS MODEL

LOCATION: MANITOBA SCARBOROUGH  
 LATITUDE: 49.2

OBSERVED	1	2	3	4	5	6	7	8	9	10	11	12
NORMAL MAX:	4.5	15.3	25.0	47.8	53.7	72.5	74.5	77.4	65.7	53.2	31.1	17.1
NORMAL MIN:	-9.6	-5.5	7.5	27.0	38.8	48.9	54.5	51.8	41.5	31.3	14.7	-0.8
ESTIMATED												
NORMAL MAX:	4.0	13.2	25.5	43.5	52.4	77.0	83.6	40.2	67.9	44.9	31.1	15.4
NORMAL MIN:	-8.1	-6.1	4.1	20.0	37.1	51.1	58.0	58.1	45.9	30.1	12.4	-1.1

P	F	J	M	A	M
00	26	56	70	90	200
01	26	56	70	90	200
02	26	56	70	90	200
03	26	56	70	90	200
04	26	56	70	90	200
05	26	56	70	90	200
06	26	56	70	90	200
07	26	56	70	90	200
08	26	56	70	90	200
09	26	56	70	90	200
10	26	56	70	90	200
11	26	56	70	90	200
12	26	56	70	90	200
13	26	56	70	90	200
14	26	56	70	90	200
15	26	56	70	90	200
16	26	56	70	90	200
17	26	56	70	90	200
18	26	56	70	90	200
19	26	56	70	90	200
20	26	56	70	90	200
21	26	56	70	90	200
22	26	56	70	90	200
23	26	56	70	90	200
24	26	56	70	90	200
25	26	56	70	90	200
26	26	56	70	90	200
27	26	56	70	90	200
28	26	56	70	90	200
29	26	56	70	90	200
30	26	56	70	90	200
31	26	56	70	90	200

ORIGINAL PAGE 1  
 OF POOR QUALITY

CHOP STAGE INITIAL DATES FOR CHOP1 50 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON 54FS MODEL

LOCATION: MANITOWA SCIMORON

LATITUDE: 40.2°

OBSERVED

NORMAL MAX:	0.6	16.3	24.0	47.8	63.7	72.5	79.5	77.4	65.7	53.2	31.1	17.1
NORMAL MIN:	-0.4	-5.6	7.5	27.0	38.4	44.9	54.5	51.8	41.5	31.3	14.7	-0.8
ESTIMATED												
NORMAL MAX:	0.0	13.2	25.5	43.5	62.4	77.0	83.6	80.2	67.4	49.9	31.1	16.4
NORMAL MIN:	-2.0	-6.1	4.1	20.0	37.1	51.1	58.0	56.1	45.9	30.1	12.4	-1.1

	D	F	J	M	A	M
00	20	31	15	15	200	20
01	20	31	15	15	200	20
02	20	31	15	15	200	20
03	20	31	15	15	200	20
04	20	31	15	15	200	20
05	20	31	15	15	200	20
06	20	31	15	15	200	20
07	20	31	15	15	200	20
08	20	31	15	15	200	20
09	20	31	15	15	200	20
10	20	31	15	15	200	20
11	20	31	15	15	200	20
12	20	31	15	15	200	20
13	20	31	15	15	200	20
14	20	31	15	15	200	20
15	20	31	15	15	200	20
16	20	31	15	15	200	20
17	20	31	15	15	200	20
18	20	31	15	15	200	20
19	20	31	15	15	200	20
20	20	31	15	15	200	20
21	20	31	15	15	200	20
22	20	31	15	15	200	20
23	20	31	15	15	200	20
24	20	31	15	15	200	20
25	20	31	15	15	200	20
26	20	31	15	15	200	20
27	20	31	15	15	200	20
28	20	31	15	15	200	20
29	20	31	15	15	200	20
30	20	31	15	15	200	20
31	20	31	15	15	200	20
32	20	31	15	15	200	20
33	20	31	15	15	200	20
34	20	31	15	15	200	20
35	20	31	15	15	200	20
36	20	31	15	15	200	20
37	20	31	15	15	200	20
38	20	31	15	15	200	20
39	20	31	15	15	200	20
40	20	31	15	15	200	20
41	20	31	15	15	200	20
42	20	31	15	15	200	20
43	20	31	15	15	200	20
44	20	31	15	15	200	20
45	20	31	15	15	200	20
46	20	31	15	15	200	20
47	20	31	15	15	200	20
48	20	31	15	15	200	20
49	20	31	15	15	200	20
50	20	31	15	15	200	20
51	20	31	15	15	200	20
52	20	31	15	15	200	20
53	20	31	15	15	200	20
54	20	31	15	15	200	20
55	20	31	15	15	200	20
56	20	31	15	15	200	20
57	20	31	15	15	200	20
58	20	31	15	15	200	20
59	20	31	15	15	200	20
60	20	31	15	15	200	20
61	20	31	15	15	200	20
62	20	31	15	15	200	20
63	20	31	15	15	200	20
64	20	31	15	15	200	20
65	20	31	15	15	200	20
66	20	31	15	15	200	20
67	20	31	15	15	200	20
68	20	31	15	15	200	20
69	20	31	15	15	200	20
70	20	31	15	15	200	20
71	20	31	15	15	200	20
72	20	31	15	15	200	20
73	20	31	15	15	200	20
74	20	31	15	15	200	20
75	20	31	15	15	200	20
76	20	31	15	15	200	20
77	20	31	15	15	200	20
78	20	31	15	15	200	20
79	20	31	15	15	200	20
80	20	31	15	15	200	20
81	20	31	15	15	200	20
82	20	31	15	15	200	20
83	20	31	15	15	200	20
84	20	31	15	15	200	20
85	20	31	15	15	200	20
86	20	31	15	15	200	20
87	20	31	15	15	200	20
88	20	31	15	15	200	20
89	20	31	15	15	200	20
90	20	31	15	15	200	20
91	20	31	15	15	200	20
92	20	31	15	15	200	20
93	20	31	15	15	200	20
94	20	31	15	15	200	20
95	20	31	15	15	200	20
96	20	31	15	15	200	20
97	20	31	15	15	200	20
98	20	31	15	15	200	20
99	20	31	15	15	200	20
100	20	31	15	15	200	20

ORIGINAL PAGE IS OF POOR QUALITY

COOP STAGE JULIAI DATES FOR COOP: 54 (DERIVED FROM CLIMATIC NORMALS ADAPTED TO A ROBERTSON HMTS MODEL)

LOCATION: MARITONIA 54

LATITUDE: 49.40

OBSERVED

NORMAL MAX: 9.7 15.3 27.9 44.2 53.7 72.1 79.5 77.0 65.7 52.7 30.9 16.9

NORMAL MIN: -9.4 -5.4 7.3 25.8 38.7 48.4 54.0 51.1 40.4 30.6 14.2 -0.8

ESTIMATED

NORMAL MAX: 9.7 13.2 25.5 43.5 52.4 77.0 83.5 81.0 67.7 49.6 30.4 16.2

NORMAL MIN: -7.0 -5.9 4.3 14.9 36.5 50.5 57.2 55.3 45.1 24.4 12.5 -1.1

	D	F	J	M	A	M
00	VA	VA	VA	70	00	VA
01	VA	VA	VA	70	00	VA
02	VA	VA	VA	70	00	VA
03	VA	VA	VA	70	00	VA
04	VA	VA	VA	70	00	VA
05	VA	VA	VA	70	00	VA
06	VA	VA	VA	70	00	VA
07	VA	VA	VA	70	00	VA
08	VA	VA	VA	70	00	VA
09	VA	VA	VA	70	00	VA
10	VA	VA	VA	70	00	VA
11	VA	VA	VA	70	00	VA
12	VA	VA	VA	70	00	VA
13	VA	VA	VA	70	00	VA
14	VA	VA	VA	70	00	VA
15	VA	VA	VA	70	00	VA
16	VA	VA	VA	70	00	VA
17	VA	VA	VA	70	00	VA
18	VA	VA	VA	70	00	VA
19	VA	VA	VA	70	00	VA
20	VA	VA	VA	70	00	VA
21	VA	VA	VA	70	00	VA
22	VA	VA	VA	70	00	VA
23	VA	VA	VA	70	00	VA
24	VA	VA	VA	70	00	VA
25	VA	VA	VA	70	00	VA
26	VA	VA	VA	70	00	VA
27	VA	VA	VA	70	00	VA
28	VA	VA	VA	70	00	VA
29	VA	VA	VA	70	00	VA
30	VA	VA	VA	70	00	VA
31	VA	VA	VA	70	00	VA
32	VA	VA	VA	70	00	VA
33	VA	VA	VA	70	00	VA
34	VA	VA	VA	70	00	VA
35	VA	VA	VA	70	00	VA
36	VA	VA	VA	70	00	VA
37	VA	VA	VA	70	00	VA
38	VA	VA	VA	70	00	VA
39	VA	VA	VA	70	00	VA
40	VA	VA	VA	70	00	VA
41	VA	VA	VA	70	00	VA
42	VA	VA	VA	70	00	VA
43	VA	VA	VA	70	00	VA
44	VA	VA	VA	70	00	VA
45	VA	VA	VA	70	00	VA
46	VA	VA	VA	70	00	VA
47	VA	VA	VA	70	00	VA
48	VA	VA	VA	70	00	VA
49	VA	VA	VA	70	00	VA
50	VA	VA	VA	70	00	VA
51	VA	VA	VA	70	00	VA
52	VA	VA	VA	70	00	VA
53	VA	VA	VA	70	00	VA
54	VA	VA	VA	70	00	VA
55	VA	VA	VA	70	00	VA
56	VA	VA	VA	70	00	VA
57	VA	VA	VA	70	00	VA
58	VA	VA	VA	70	00	VA
59	VA	VA	VA	70	00	VA
60	VA	VA	VA	70	00	VA
61	VA	VA	VA	70	00	VA
62	VA	VA	VA	70	00	VA
63	VA	VA	VA	70	00	VA
64	VA	VA	VA	70	00	VA
65	VA	VA	VA	70	00	VA
66	VA	VA	VA	70	00	VA
67	VA	VA	VA	70	00	VA
68	VA	VA	VA	70	00	VA
69	VA	VA	VA	70	00	VA
70	VA	VA	VA	70	00	VA
71	VA	VA	VA	70	00	VA
72	VA	VA	VA	70	00	VA
73	VA	VA	VA	70	00	VA
74	VA	VA	VA	70	00	VA
75	VA	VA	VA	70	00	VA
76	VA	VA	VA	70	00	VA
77	VA	VA	VA	70	00	VA
78	VA	VA	VA	70	00	VA
79	VA	VA	VA	70	00	VA
80	VA	VA	VA	70	00	VA
81	VA	VA	VA	70	00	VA
82	VA	VA	VA	70	00	VA
83	VA	VA	VA	70	00	VA
84	VA	VA	VA	70	00	VA
85	VA	VA	VA	70	00	VA
86	VA	VA	VA	70	00	VA
87	VA	VA	VA	70	00	VA
88	VA	VA	VA	70	00	VA
89	VA	VA	VA	70	00	VA
90	VA	VA	VA	70	00	VA
91	VA	VA	VA	70	00	VA
92	VA	VA	VA	70	00	VA
93	VA	VA	VA	70	00	VA
94	VA	VA	VA	70	00	VA
95	VA	VA	VA	70	00	VA
96	VA	VA	VA	70	00	VA
97	VA	VA	VA	70	00	VA
98	VA	VA	VA	70	00	VA
99	VA	VA	VA	70	00	VA
100	VA	VA	VA	70	00	VA

CROP STAGE JULIAN DATES FOR CROPS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON RMTS MODEL

LOCATION: MANITOBA S4  
 LATITUDE: 49.4

OBSERVED  
 NORMAL MAX: 9.3 15.3 21.9 48.2 53.7 72.1 79.5 77.0 65.7 52.7 30.9 16.9  
 NORMAL MIN: -9.4 -5.4 7.3 26.8 38.7 48.4 54.0 51.1 40.4 30.6 14.2 -0.8  
 ESTIMATED  
 NORMAL MAX: 9.7 13.2 25.5 43.6 52.4 77.0 83.5 80.0 67.7 49.6 30.8 16.2  
 NORMAL MIN: -7.0 -5.9 4.3 19.9 36.8 50.5 57.2 55.3 45.1 29.4 12.5 -1.1

	D	F	J	M	A	M
150	158	176	196	215	225	225
151	159	177	197	216	226	226
152	160	178	198	217	227	227
153	161	179	199	218	227	227
154	161	179	199	218	227	227
155	162	180	200	219	228	228
156	163	181	201	220	229	229
157	164	182	202	221	230	230
158	165	183	203	222	231	231
159	166	184	204	223	232	232
160	167	185	205	224	233	233
161	168	186	206	225	234	234
162	169	187	207	226	235	235
163	170	188	208	227	236	236
164	171	189	209	228	237	237
165	172	190	210	229	238	238
166	173	191	211	230	239	239
167	174	192	212	231	240	240
168	175	193	213	232	241	241
169	176	194	214	233	242	242
170	177	195	215	234	243	243
171	178	196	216	235	244	244
172	179	197	217	236	245	245
173	180	198	218	237	246	246
174	181	199	219	238	247	247
175	182	200	220	239	248	248
176	183	201	221	240	249	249
177	184	202	222	241	250	250
178	185	203	223	242	251	251
179	186	204	224	243	252	252

CROP STAGE JULIAN DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON-EMTS MODEL

LOCATION: MANTONA SWIMBANDON

LATITUDE: 29.85

OBSERVED

NORMAL MAX: 9.3 15.3 27.3 48.2 63.7 72.1 74.5 77.0 65.7 52.7 30.9 16.9

NORMAL MIN: -4.4 -5.4 7.3 26.8 38.7 49.4 54.0 51.1 40.8 30.6 14.2 -0.8

ESTIMATED

NORMAL MAX: 6.7 13.2 25.5 43.6 52.4 77.0 83.5 80.0 67.7 49.6 30.8 16.2

NORMAL MIN: -7.0 -5.4 4.3 19.9 36.4 50.5 57.2 55.3 45.1 24.4 12.5 -1.1

	D	F	J	M	A	M
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

CROP STAGE PHENOLOGICAL DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A COEFFICIENTS IN 4MIS MODEL

LOCATION: MAITONA 5:14-0100N

LATITUDE: 29.45

OBSERVED

NORMAL MAX: 0.3 15.3 27.0 44.2 53.7 72.1 74.5 77.0 65.7 52.7 30.4 16.4  
 NORMAL MIN: -9.4 -5.4 7.3 26.4 34.7 48.4 54.0 51.1 40.4 30.6 14.2 -0.3

ESTIMATED

NORMAL MAX: 0.7 13.2 25.3 43.6 52.4 77.0 83.5 80.0 67.7 49.6 30.4 15.2  
 NORMAL MIN: -7.9 -5.9 4.3 19.9 36.4 50.5 57.2 55.3 45.1 29.4 12.5 -1.1

	D	F	J	M	A	M
30	30	52	104	203	203	3
31	40	53	124	203	203	3
32	41	53	144	203	203	3
33	42	54	164	203	203	3
34	43	55	184	203	203	3
35	44	55	204	203	203	3
36	44	56	224	203	203	3
37	45	57	244	203	203	3
38	46	57	264	203	203	3
39	47	58	284	203	203	3
40	47	58	304	203	203	3
41	48	59	324	203	203	3
42	49	59	344	203	203	3
43	50	60	364	203	203	3
44	51	71	384	203	203	3
45	52	72	404	203	203	3
46	53	73	424	203	203	3
47	54	74	444	203	203	3
48	55	75	464	203	203	3
49	56	76	484	203	203	3
50	57	77	504	203	203	3
51	58	77	524	203	203	3
52	59	78	544	203	203	3
53	60	79	564	203	203	3
54	61	79	584	203	203	3
55	62	80	604	203	203	3
56	63	81	624	203	203	3
57	64	82	644	203	203	3
58	65	83	664	203	203	3
59	66	84	684	203	203	3

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CROP STAGE JULIAN DATES FOR CROPS S<sub>1</sub> DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MARITIME S<sub>1</sub>  
 LATITUDE: 40.4°

OBSERVED												
NORMAL MAX:	9.2	15.3	27.0	44.2	63.7	72.1	79.5	77.0	65.7	52.7	30.4	16.9
NORMAL MIN:	-9.4	-5.4	7.3	26.8	38.7	44.4	54.0	51.1	40.8	30.6	14.2	-0.8
ESTIMATED												
NORMAL MAX:	9.7	13.2	23.5	43.6	62.4	77.0	83.5	80.0	67.7	49.6	30.4	14.2
NORMAL MIN:	-7.0	-5.9	4.3	19.9	36.4	50.5	57.2	55.3	45.1	29.4	12.5	-1.1

	D	F	J	M	A	M
1950	20	31	58	88	117	146
1951	20	33	58	88	117	146
1952	20	33	58	88	117	146
1953	20	33	58	88	117	146
1954	20	33	58	88	117	146
1955	20	33	58	88	117	146
1956	20	33	58	88	117	146
1957	20	33	58	88	117	146
1958	20	33	58	88	117	146
1959	20	33	58	88	117	146
1960	20	33	58	88	117	146
1961	20	33	58	88	117	146
1962	20	33	58	88	117	146
1963	20	33	58	88	117	146
1964	20	33	58	88	117	146
1965	20	33	58	88	117	146
1966	20	33	58	88	117	146
1967	20	33	58	88	117	146
1968	20	33	58	88	117	146
1969	20	33	58	88	117	146
1970	20	33	58	88	117	146
1971	20	33	58	88	117	146
1972	20	33	58	88	117	146
1973	20	33	58	88	117	146
1974	20	33	58	88	117	146
1975	20	33	58	88	117	146
1976	20	33	58	88	117	146
1977	20	33	58	88	117	146
1978	20	33	58	88	117	146
1979	20	33	58	88	117	146
1980	20	33	58	88	117	146
1981	20	33	58	88	117	146
1982	20	33	58	88	117	146
1983	20	33	58	88	117	146
1984	20	33	58	88	117	146
1985	20	33	58	88	117	146
1986	20	33	58	88	117	146
1987	20	33	58	88	117	146
1988	20	33	58	88	117	146
1989	20	33	58	88	117	146
1990	20	33	58	88	117	146

CROP STAGE ILLIAC DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON 4MFS MODEL

LOCATION: MANTONA NORTH  
 LATITUDE: 50.50

OBSERVED												
NORMAL MAX:	7.5	13.0	20.2	45.9	51.7	71.2	77.9	75.2	63.9	51.4	29.7	15.3
NORMAL MIN:	-11.0	-7.4	5.2	25.7	38.1	48.6	54.7	52.0	42.1	32.2	14.7	-1.8
ESTIMATED												
NORMAL MAX:	7.5	13.0	23.7	41.6	48.5	75.1	81.7	78.4	66.2	44.3	29.5	14.4
NORMAL MIN:	-10.5	-7.1	2.0	18.1	35.4	50.7	58.4	57.0	45.8	30.7	12.0	-1.5

	P	F	J	M	A	M
30	U	U	U	U	U	U
31	U	U	U	U	U	U
32	U	U	U	U	U	U
33	U	U	U	U	U	U
34	U	U	U	U	U	U
35	U	U	U	U	U	U
36	U	U	U	U	U	U
37	U	U	U	U	U	U
38	U	U	U	U	U	U
39	U	U	U	U	U	U
40	U	U	U	U	U	U
41	U	U	U	U	U	U
42	U	U	U	U	U	U
43	U	U	U	U	U	U
44	U	U	U	U	U	U
45	U	U	U	U	U	U
46	U	U	U	U	U	U
47	U	U	U	U	U	U
48	U	U	U	U	U	U
49	U	U	U	U	U	U
50	U	U	U	U	U	U
51	U	U	U	U	U	U
52	U	U	U	U	U	U
53	U	U	U	U	U	U
54	U	U	U	U	U	U
55	U	U	U	U	U	U
56	U	U	U	U	U	U
57	U	U	U	U	U	U
58	U	U	U	U	U	U
59	U	U	U	U	U	U
60	U	U	U	U	U	U
61	U	U	U	U	U	U
62	U	U	U	U	U	U
63	U	U	U	U	U	U
64	U	U	U	U	U	U
65	U	U	U	U	U	U
66	U	U	U	U	U	U
67	U	U	U	U	U	U
68	U	U	U	U	U	U
69	U	U	U	U	U	U
70	U	U	U	U	U	U
71	U	U	U	U	U	U
72	U	U	U	U	U	U
73	U	U	U	U	U	U
74	U	U	U	U	U	U
75	U	U	U	U	U	U
76	U	U	U	U	U	U
77	U	U	U	U	U	U
78	U	U	U	U	U	U
79	U	U	U	U	U	U
80	U	U	U	U	U	U
81	U	U	U	U	U	U
82	U	U	U	U	U	U
83	U	U	U	U	U	U
84	U	U	U	U	U	U
85	U	U	U	U	U	U
86	U	U	U	U	U	U
87	U	U	U	U	U	U
88	U	U	U	U	U	U
89	U	U	U	U	U	U
90	U	U	U	U	U	U
91	U	U	U	U	U	U
92	U	U	U	U	U	U
93	U	U	U	U	U	U
94	U	U	U	U	U	U
95	U	U	U	U	U	U
96	U	U	U	U	U	U
97	U	U	U	U	U	U
98	U	U	U	U	U	U
99	U	U	U	U	U	U
100	U	U	U	U	U	U

CROP STAGE JULIAN DATES FOR CROPS: (AS DERIVED FROM CLIMATIC NORMALS ADAPTED TO A ROBERTSON GMS MODEL)

LOCATION: MARIETTA, GA  
 LATITUDE: 30.5°

OBSERVED

NORMAL MAX:	7.5	13.0	20.2	45.0	51.7	71.2	77.9	75.2	63.4	51.4	29.7	15.3
NORMAL MIN:	-11.0	-7.4	5.2	25.7	34.1	48.0	54.7	52.0	42.1	32.2	14.7	-1.0

ESTIMATED

NORMAL MAX:	5.2	11.7	23.7	41.0	60.5	75.1	81.7	77.4	65.2	48.3	29.5	14.8
NORMAL MIN:	-9.0	-4.1	2.0	18.1	35.9	50.7	58.4	57.0	45.8	30.7	12.9	-1.0

	D	F	J	A	S	O
64	64	64	64	64	64	64
65	65	65	65	65	65	65
66	66	66	66	66	66	66
67	67	67	67	67	67	67
68	68	68	68	68	68	68
69	69	69	69	69	69	69
70	70	70	70	70	70	70
71	71	71	71	71	71	71
72	72	72	72	72	72	72
73	73	73	73	73	73	73
74	74	74	74	74	74	74
75	75	75	75	75	75	75
76	76	76	76	76	76	76
77	77	77	77	77	77	77
78	78	78	78	78	78	78
79	79	79	79	79	79	79
80	80	80	80	80	80	80
81	81	81	81	81	81	81
82	82	82	82	82	82	82
83	83	83	83	83	83	83
84	84	84	84	84	84	84
85	85	85	85	85	85	85
86	86	86	86	86	86	86
87	87	87	87	87	87	87
88	88	88	88	88	88	88
89	89	89	89	89	89	89
90	90	90	90	90	90	90
91	91	91	91	91	91	91
92	92	92	92	92	92	92
93	93	93	93	93	93	93
94	94	94	94	94	94	94
95	95	95	95	95	95	95
96	96	96	96	96	96	96
97	97	97	97	97	97	97
98	98	98	98	98	98	98
99	99	99	99	99	99	99
00	00	00	00	00	00	00

ORIGINAL PAGE IS OF POOR QUALITY

APPENDIX D  
PHENOLOGY MODEL OUTPUT FOR SPRING BARLEY

COMPARISON OF JULIAN DATES FOR CROPS AS DERIVED FROM  
 CLIMATIC JOURNALS APPLIED TO A PARENT 1900 DOTS MODEL

LOCATION: BENEDETTA SOUTH LEITHOROUGH

LAST YEAR														
JOURNAL MAX:	21.6	27.1	74.9	20.3	62.9	69.3	76.5	74.1	68.0	30.1	37.0	27.0		
JOURNAL MIN:	0.9	5.0	13.1	26.9	36.7	43.5	48.0	45.5	37.9	29.5	19.9	7.0		
DATE DATE														
JOURNAL MAX:	21.7	27.2	75.0	20.4	63.0	70.4	77.0	74.6	68.1	30.2	37.1	27.1		
JOURNAL MIN:	1.0	5.1	11.7	23.3	35.7	42.4	47.0	44.6	38.0	29.6	19.0	6.3		

1	2	3	4	5	6
1900	1901	1902	1903	1904	1905
1906	1907	1908	1909	1910	1911
1912	1913	1914	1915	1916	1917
1918	1919	1920	1921	1922	1923
1924	1925	1926	1927	1928	1929
1930	1931	1932	1933	1934	1935
1936	1937	1938	1939	1940	1941
1942	1943	1944	1945	1946	1947
1948	1949	1950	1951	1952	1953
1954	1955	1956	1957	1958	1959
1960	1961	1962	1963	1964	1965
1966	1967	1968	1969	1970	1971
1972	1973	1974	1975	1976	1977
1978	1979	1980	1981	1982	1983
1984	1985	1986	1987	1988	1989
1990	1991	1992	1993	1994	1995
1996	1997	1998	1999	2000	

CROP STAGE JULIAN DATES FOR CROPS SH DERIVED FROM  
CLIMATIC JOURNALS APPLIED TO A ROBERTSON SMIS MODEL

LOCATION: ALBERTA SOUTH LEINORIDGE  
LATITUDE: 44.70  
EASEMENT

JOURNAL MAX: 21.2 27.1 34.9 50.5 62.6 68.5 76.3 74.1 64.6 54.1 37.0 27.0  
 JOURNAL MIN: 0.5 3.0 13.1 20.8 36.7 43.7 46.0 45.5 37.4 29.5 10.5 7.0  
 ESTIMATED  
 JOURNAL MAX: 21.7 24.5 34.3 47.2 62.5 73.4 76.0 75.1 65.4 51.5 37.2 26.3  
 JOURNAL MIN: 1.9 3.8 11.7 23.3 33.7 45.4 49.8 47.4 40.0 28.3 10.0 0.3

	P	J	M	A	M
125	134	144	173	179	199
126	135	145	174	179	200
127	135	145	174	179	201
128	137	146	175	179	201
129	137	146	175	179	202
130	137	146	175	179	203
131	137	146	175	179	204
132	141	150	176	195	204
133	142	150	179	195	205
134	143	151	180	195	207
135	144	152	181	197	207
136	145	153	181	197	207
137	145	153	182	199	209
138	145	153	182	200	210
139	147	154	184	201	211
140	147	154	184	201	211
141	147	154	184	201	211
142	147	154	184	201	211
143	147	154	184	201	211
144	147	154	184	201	211
145	147	154	184	201	211
146	147	154	184	201	211
147	147	154	184	201	211
148	147	154	184	201	211
149	147	154	184	201	211
150	147	154	184	201	211
151	147	154	184	201	211
152	147	154	184	201	211
153	147	154	184	201	211
154	147	154	184	201	211

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CHROMOSPHERE JULIAN DATES FOR CROP: 54 DERIVED FROM  
 CLIMATIC RECORDS APPLIED TO A ROBERTSON-BLIS MODEL

LOCATION: ALBERTA 50013 LACOMBS  
 LATITUDE: 54.50

U-SF (AVE)														
NORMAL MAX:	21.2	27.1	34.4	39.5	42.9	48.5	76.3	74.1	54.9	34.1	31.0	27.0		
NORMAL MIN:	0.5	5.0	13.1	26.8	36.7	43.5	48.0	45.5	37.9	24.5	16.5	7.0		
ESTIMATED														
NORMAL MAX:	21.7	24.9	34.3	43.2	52.5	73.4	70.0	73.1	55.4	31.5	31.2	26.3		
NORMAL MIN:	1.9	5.0	11.7	23.5	35.7	45.4	44.8	47.9	40.0	28.3	16.0	0.3		

110	128	140	144	141	141
111	128	140	143	141	141
112	129	141	145	141	141
113	129	141	145	142	142
114	129	142	145	142	142
115	129	142	146	142	142
116	129	143	147	143	143
117	127	143	147	143	143
118	128	144	148	144	143
119	128	144	148	144	144
120	128	145	149	145	144
121	131	145	149	145	145
122	131	146	170	145	145
123	132	147	170	146	146
124	133	148	171	147	147
125	134	149	172	147	147
126	135	149	172	148	148
127	136	150	173	149	149
128	137	151	174	149	149
129	138	152	174	149	200
130	139	153	175	191	201
131	140	153	175	192	201
132	141	154	177	193	202
133	142	155	177	194	203
134	143	156	177	195	204
135	144	157	174	195	205
136	145	158	180	196	207
137	146	159	181	197	207
138	146	160	182	198	208
139	147	161	183	199	208

ORIGINAL PAGE IS  
 OF POOR QUALITY

1968 STATION DATA - VALUES FOR GROUPS AS DERIVED FROM  
 GAUSSIAN NORMALS APPLIED TO A ROBERTSON'S MODEL

STATION: 123514 SOUTH LAGOON  
 LATITUDE: 32.50

OBSERVED		ESTIMATED										
NORMAL MAX:	21.6	27.1	34.9	39.7	42.6	45.5	76.5	74.1	54.5	54.1	37.0	27.0
NORMAL MIN:	0.5	5.0	13.1	20.8	36.7	43.5	46.0	45.5	37.9	27.5	17.5	7.0
NORMAL MAX:	21.7	28.5	34.3	40.2	42.5	43.4	76.0	75.1	55.4	51.5	37.2	26.3
NORMAL MIN:	1.9	3.9	11.7	23.3	35.7	45.4	44.8	47.9	40.8	28.3	16.0	0.5

1	2	3	4	5	6
194	197	192	194	200	204
194	197	193	195	201	210
194	197	194	196	202	212
194	197	195	198	204	213
194	197	195	197	204	214
194	197	195	196	203	215
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194	197	196	198	207	218
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194	197	197	199	256	267
194	197	197	199	257	268
194	197	197	199	258	269
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194	197	197	199	262	273
194	197	197	199	263	274
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194	197	197	199	273	284
194	197	197	199	274	285
194	197	197	199	275	286
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194	197	197	199	360	371
194	197	197	199	361	372
194	197	197	199	362	373
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194	197	197	199	364	375
194	197	197	199	365	376
194	197	197	199	366	377
194	197	197	199	367	378
194	197	197	199	368	379
194	197	197	199	369	380
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194	197	197	199	371	382
194	197	197	199	372	383
194	197	197	199	373	384
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194	197	197	199	377	388
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194	197	197	199	380	391
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194	197	197	199	399	410
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194	197	197	199	412	423
194	197	197	199	413	424
194	197	197	199	414	425
194	197	197	199	415	426
194	197	197	19		



CROP STAGE DULCIFICATION FOR CROPS: SE DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTS' N. P. T. S. MODEL

LOCATION: 664871A CENTRAL EQUATOR  
 LATITUDE: 53.50  
 (BASELINE)

NORMAL MAX:	12.4	20.3	30.0	40.0	50.2	58.2	73.0	70.7	61.3	50.4	30.3	10.0
NORMAL MIN:	-7.0	-2.0	8.1	25.5	38.7	43.5	48.0	45.7	37.4	25.0	12.7	-0.0
ESTIMATED												
NORMAL MAX:	12.4	10.3	28.3	44.3	50.4	73.3	78.2	74.4	62.0	40.0	30.2	17.0
NORMAL MIN:	-5.2	-4.0	5.5	19.7	34.7	40.0	52.2	50.0	40.3	25.3	11.2	-0.7

	1	2	3	4	5	6
104	114	120	127	135	140	140
105	114	120	127	135	140	140
106	114	120	127	135	140	140
107	114	120	127	135	140	140
108	114	120	127	135	140	140
109	114	120	127	135	140	140
110	114	120	127	135	140	140
111	114	120	127	135	140	140
112	114	120	127	135	140	140
113	114	120	127	135	140	140
114	114	120	127	135	140	140
115	114	120	127	135	140	140
116	114	120	127	135	140	140
117	114	120	127	135	140	140
118	114	120	127	135	140	140
119	114	120	127	135	140	140
120	114	120	127	135	140	140
121	114	120	127	135	140	140
122	114	120	127	135	140	140
123	114	120	127	135	140	140
124	114	120	127	135	140	140

GROUP STAFF ONLY - VALUES FOR GROUPS ARE DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON WINDS MODEL

LOCATION: WILMINGTON CENTRAL AIRPORT

LATITUDE: 33.50

UNSERVED

NORMAL MAX: 12.4 21.3 30.5 43.0 52.2 64.2 73.6 70.7 51.3 30.4 30.0 15.0

NORMAL MIN: -7.0 -2.0 2.1 25.5 36.7 43.5 48.4 45.7 37.4 28.0 12.7 -0.0

ESTIMATED

NORMAL MAX: 12.3 16.5 26.3 44.5 50.9 63.3 70.2 74.4 62.0 45.0 30.2 17.3

NORMAL MIN: -5.2 -4.0 3.5 19.7 34.7 46.6 52.2 50.0 40.5 26.3 11.2 -0.7

125	135	144	172	181	190
126	135	144	170	180	190
127	135	144	173	180	197
128	135	144	173	181	196
129	135	144	174	181	196
130	135	144	175	181	196
131	135	144	175	181	200
132	135	144	176	182	200
133	135	144	177	183	201
134	135	144	177	183	202
135	135	144	177	183	203
136	135	144	177	183	204
137	135	144	178	183	204
138	135	144	178	183	205
139	135	144	178	183	205
140	135	144	178	183	205
141	135	144	178	183	205
142	135	144	178	183	205
143	135	144	178	183	205
144	135	144	178	183	205
145	135	144	178	183	205
146	135	144	178	183	205
147	135	144	178	183	205
148	135	144	178	183	205
149	135	144	178	183	205
150	135	144	178	183	205
151	135	144	178	183	205
152	135	144	178	183	205
153	135	144	178	183	205
154	135	144	178	183	205
155	135	144	178	183	205
156	135	144	178	183	205
157	135	144	178	183	205
158	135	144	178	183	205
159	135	144	178	183	205
160	135	144	178	183	205
161	135	144	178	183	205
162	135	144	178	183	205
163	135	144	178	183	205
164	135	144	178	183	205
165	135	144	178	183	205
166	135	144	178	183	205
167	135	144	178	183	205
168	135	144	178	183	205
169	135	144	178	183	205
170	135	144	178	183	205
171	135	144	178	183	205
172	135	144	178	183	205
173	135	144	178	183	205
174	135	144	178	183	205
175	135	144	178	183	205

CROP STAGE DULIN DATES FOR CROP: SA DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BATS MODEL

LOCATION: ALBERTA CENTRAL EDMONTON  
 LATITUDE: 53.50

UNSERVED  
 NORMAL MAX: 12.4 20.3 30.0 40.0 62.2 68.2 73.6 70.7 61.3 50.4 30.0 18.0  
 NORMAL MIN: -7.0 -2.0 8.1 25.3 36.7 43.5 48.4 45.7 37.4 28.0 12.7 -0.6  
 ESTIMATED  
 NORMAL MAX: 12.4 10.0 28.3 44.5 60.9 73.3 78.2 74.4 62.8 48.0 30.2 17.8  
 NORMAL MIN: -4.2 -4.0 5.5 19.7 34.7 46.6 52.2 50.0 40.5 27.3 11.2 -0.7

P	E	J	A	S	N
155	152	170	197	210	223
155	153	177	190	210	224
157	154	179	195	215	225
157	155	180	200	217	225
157	155	181	201	215	227
159	157	182	202	219	229
161	159	183	204	221	230
162	169	184	205	222	232
163	170	185	205	223	233
166	171	185	207	224	235
167	171	187	208	227	235
167	172	185	209	227	235
167	173	190	210	228	237
168	174	191	211	229	241
168	175	192	212	230	243
170	175	193	214	232	244
171	177	194	215	233	246
172	174	195	216	234	247
173	174	195	217	235	251
174	180	197	218	237	254
175	181	198	219	238	250
176	182	199	220	239	254
177	183	200	221	241	255
178	184	201	222	242	253
179	185	201	223	244	250
180	185	202	224	245	257
181	187	203	225	247	253
182	188	204	227	249	254
183	189	205	228	251	255
184	190	206	229	254	257

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CLIMATE STATION JULIA. DATE: 1912. HURTS. SE. 10120. 10120. 10120. 10120.  
 CLIMATIC NORMALS APPLIED TO 4. 10120. 10120. 10120. 10120.

LOCATION:	ALTIMETER:	UNIT:	HEIGHT:	COOR:
CLIMATE STATION JULIA	55.21			
UNSEASONS				
NORMAL	7.1	17.5	29.3	47.1
NORMAL	10.3	3.0	0.0	24.0
ESTIMATED				
NORMAL	3.5	13.5	28.0	43.0
NORMAL	9.1	2.5	18.0	34.5

121	131	147	154	157	143
122	132	147	170	145	143
123	133	147	170	145	143
124	134	147	170	145	143
125	135	147	170	145	143
126	136	147	170	145	143
127	137	147	170	145	143
128	138	147	170	145	143
129	139	147	170	145	143
130	140	147	170	145	143
131	141	147	170	145	143
132	142	147	170	145	143
133	143	147	170	145	143
134	144	147	170	145	143
135	145	147	170	145	143
136	146	147	170	145	143
137	147	147	170	145	143
138	148	147	170	145	143
139	149	147	170	145	143
140	150	147	170	145	143
141	151	147	170	145	143
142	152	147	170	145	143
143	153	147	170	145	143
144	154	147	170	145	143
145	155	147	170	145	143
146	156	147	170	145	143
147	157	147	170	145	143
148	158	147	170	145	143
149	159	147	170	145	143
150	160	147	170	145	143
151	161	147	170	145	143
152	162	147	170	145	143
153	163	147	170	145	143
154	164	147	170	145	143
155	165	147	170	145	143
156	166	147	170	145	143
157	167	147	170	145	143
158	168	147	170	145	143
159	169	147	170	145	143
160	170	147	170	145	143

CLIMATE DATA FOR MONTHS RECEIVED FROM  
 CLIMATIC VARIABLES APPLIED TO A MATHEMATICAL MODEL

LOCATION: ALBERTA NORTHWEAST CORNER

LATITUDE: 55.20

UNSERVED

NORMAL MAX:	4.1	17.5	24.3	47.1	61.5	67.5	71.1	69.0	64.1	48.4	21.1	14.4
NORMAL MIN:	-10.3	-3.4	0.0	24.0	36.7	43.5	47.8	45.3	37.2	20.2	10.3	-3.5
ESTIMATED												
NORMAL MAX:	4.5	13.4	20.0	43.0	60.2	67.4	71.5	63.3	61.2	44.2	21.1	14.4
NORMAL MIN:	-4.1	-0.0	3.7	10.5	34.5	47.1	53.0	50.5	40.4	25.3	9.4	-3.2

J	F	M	A	M	J
150	157	170	191	207	215
151	155	171	192	208	216
152	156	172	193	209	217
153	157	173	194	210	218
154	158	174	195	211	219
155	159	175	196	212	220
156	160	176	197	213	221
157	161	177	198	214	222
158	162	178	199	215	223
159	163	179	200	216	224
160	164	180	201	217	225
161	165	181	202	218	226
162	166	182	203	219	227
163	167	183	204	220	228
164	168	184	205	221	229
165	169	185	206	222	230
166	170	186	207	223	231
167	171	187	208	224	232
168	172	188	209	225	233
169	173	189	210	226	234
170	174	190	211	227	235
171	175	191	212	228	236
172	176	192	213	229	237
173	177	193	214	230	238
174	178	194	215	231	239
175	179	195	216	232	240
176	180	196	217	233	241
177	181	197	218	234	242
178	182	198	219	235	243
179	183	199	220	236	244
170	185	194	220	240	153

ORIGINAL PAGE IS  
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CROP STAGE JULIAN DATES FOR CROPS AS DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON AMTS MODEL

LOCATION: BARNHURST (4. SE:1) IN NEAD

LATITUDE: 50.50  
 JOSEAVE  
 NORMAL MAX: 10.0 10.2 27.7 43.0 53.3 71.4 79.0 70.5 55.1 52.9 30.9 13.0  
 NORMAL MIN: -8.1 -4.0 7.9 20.0 38.1 47.3 52.9 50.0 59.7 29.8 13.8 0.3  
 ESTIMATED  
 NORMAL MAX: 10.9 14.2 25.2 43.0 51.9 70.1 82.4 79.1 67.1 49.7 31.4 17.2  
 NORMAL MIN: -5.0 -4.5 5.4 20.3 36.5 49.4 55.6 53.6 43.7 28.7 12.8 -0.3

	P	C	J	n	S	X
100	121	142	165	152	190	
101	121	142	165	152	190	
102	121	142	165	152	190	
103	121	142	165	152	190	
104	121	142	165	152	190	
105	122	142	165	152	190	
106	122	142	165	152	190	
107	122	142	165	152	190	
108	123	143	166	153	190	
109	123	143	166	153	191	
110	124	143	166	153	191	
111	124	143	166	153	191	
112	125	144	167	154	191	
113	125	144	167	154	192	
114	125	144	167	154	192	
115	127	145	168	155	192	
116	127	145	168	155	193	
117	127	145	168	155	193	
118	128	145	168	155	193	
119	130	146	169	156	193	
120	130	146	169	156	194	
121	131	147	170	157	194	
122	132	148	170	157	195	
123	133	148	171	158	195	
124	134	149	171	158	195	
125	135	149	172	159	197	
126	135	150	172	159	197	
127	136	151	173	160	198	
128	137	152	174	161	198	
129	138	152	174	162	198	

CROP STATE JULIAN DATES FOR CROPS 57 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON DATA MODEL

LOCATION: SASPACIFIC-A1 SEBINGOIN MEAD  
 LATITUDE: 39.60  
 OBSERVED

NORMAL MAX:	10.0	13.2	27.7	40.0	53.3	71.4	79.0	70.5	55.1	32.9	30.9	17.0
NORMAL MIN:	-5.1	-4.0	7.9	20.0	35.1	47.3	52.9	50.0	39.7	29.0	13.0	0.3
ESTIMATED												
NORMAL MAX:	10.9	14.2	28.2	43.0	51.9	70.1	82.4	74.1	67.1	49.7	31.4	17.2
NORMAL MIN:	-5.0	-4.0	5.4	20.3	30.5	49.4	55.0	53.0	43.7	28.7	12.0	-0.3

J	F	M	A	M	J
130	134	133	175	193	200
131	141	136	175	193	201
132	141	135	170	192	202
133	142	130	177	195	203
134	143	137	175	195	204
135	143	132	172	197	205
136	144	130	180	198	206
137	145	131	181	199	207
138	145	130	182	200	208
139	146	131	182	201	209
140	147	132	183	202	210
141	147	133	184	203	211
142	148	134	185	204	212
143	148	135	186	205	213
144	149	136	187	206	214
145	150	137	188	207	215
146	150	138	189	208	216
147	151	139	190	209	217
148	151	140	191	210	218
149	152	141	192	211	219
150	152	142	193	212	220
151	153	143	194	213	221
152	153	144	195	214	222
153	154	145	196	215	223
154	154	146	197	216	224
155	155	147	198	217	225
156	155	148	199	218	226
157	156	149	200	219	227
158	156	150	201	220	228
159	157	151	202	221	229
160	157	152	203	222	230
161	158	153	204	223	231
162	158	154	205	224	232

CLIMATE DATA ESTIMATES FOR CROM: SH DERIVED FROM CLIMATIC JOURNALS APPLIED TO A SURFACE DATA MODEL

LOCATION: SAGOLONG, ALASKA  
 LATITUDE: 59.47

UNOBSERVED

NORMAL MAX:	11.0	17.2	25.0	44.3	64.4	72.3	80.6	78.3	80.7	54.0	32.0	14.2
NORMAL MIN:	-7.2	-2.9	9.0	27.0	38.3	47.3	52.7	50.0	48.1	24.3	14.2	1.0

ESTIMATED

NORMAL MAX:	12.0	15.0	27.3	44.3	63.3	77.0	84.0	80.7	68.7	51.1	32.7	15.3
NORMAL MIN:	-5.7	-3.5	8.0	21.2	37.0	44.5	55.5	53.3	43.0	25.0	12.4	0.3

	F	M	J	M	S	N
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
54	1	1	1	1	1	1
55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
76	1	1	1	1	1	1
77	1	1	1	1	1	1
78	1	1	1	1	1	1
79	1	1	1	1	1	1
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1



GRID STAGE JULIA - DATES FOR GRID: 55 DERIVED FROM  
 CLIMATIC NORMALS APPLIED TO A ROBERTSON AMIS MODEL

LOCATION: SASA (GENERAL INVESTIGATOR)  
 LATITUDE: 50.87

UNSEVEN  
 NORMAL MAX: 11.8 17.2 28.3 44.8 64.9 72.3 80.2 74.3 60.7 54.0 32.4 14.2  
 NORMAL MIN: -7.2 -2.9 4.0 27.0 38.3 47.3 52.7 50.0 40.1 24.5 14.2 1.0  
 ESTIMATED  
 NORMAL MAX: 12.0 15.2 27.3 44.3 63.3 77.3 84.0 80.7 68.7 51.1 32.7 18.3  
 NORMAL MIN: -5.7 -3.5 0.4 21.2 37.0 44.5 55.5 53.3 43.4 24.9 12.8 0.3

	P	F	J	M	S	N
120	130	146	153	133	133	146
121	131	146	154	133	133	146
122	132	147	154	133	133	146
123	132	147	154	133	133	146
124	133	147	154	133	133	146
125	133	147	154	133	133	146
126	134	148	155	133	133	146
127	134	148	155	133	133	146
128	135	148	155	133	133	146
129	135	148	155	133	133	146
130	136	149	156	133	133	146
131	136	149	156	133	133	146
132	137	149	156	133	133	146
133	137	149	156	133	133	146
134	138	150	157	133	133	146
135	138	150	157	133	133	146
136	139	150	157	133	133	146
137	139	150	157	133	133	146
138	140	151	158	133	133	146
139	140	151	158	133	133	146
140	141	151	158	133	133	146
141	141	151	158	133	133	146
142	142	152	159	133	133	146
143	142	152	159	133	133	146
144	143	152	159	133	133	146
145	143	152	159	133	133	146
146	144	153	160	133	133	146
147	144	153	160	133	133	146
148	145	153	160	133	133	146
149	145	153	160	133	133	146
150	146	154	161	133	133	146
151	146	154	161	133	133	146
152	147	154	161	133	133	146
153	147	154	161	133	133	146
154	148	155	162	133	133	146
155	148	155	162	133	133	146
156	149	155	162	133	133	146

ORIGINAL PAGE IS  
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CROP STAGE JULIAN DATES FOR CROPS SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN SOCIETY CURRENT

LATITUDE: 50.40

OBSERVED

NORMAL MAX: 16.7 21.0 31.5 50.9 64.9 72.0 81.0 75.6 67.1 55.0 35.1 23.5

NORMAL MIN: -3.3 1.0 11.8 27.7 34.8 47.1 52.3 49.5 40.1 30.0 15.4 4.5

ESTIMATED

NORMAL MAX: 15.8 19.9 31.1 47.2 54.1 77.1 82.9 79.8 68.0 52.4 35.5 22.5

NORMAL MIN: -1.8 0.5 9.7 23.4 37.4 49.1 54.3 52.0 42.4 29.1 14.7 3.4

	P	F	J	M	A	M
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

CROP STAGE JULIAN DATES FOR CROPS: SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATOON - WIND SCISKIFT CURRENT

LATITUDE: 50.40

OBSERVED

NORMAL MAX: 15.7 21.5 31.5 50.9 64.4 72.0 81.0 75.0 67.1 55.0 35.1 23.5

NORMAL MIN: -3.3 1.0 11.3 27.7 34.4 47.1 52.3 49.9 40.1 30.0 15.0 4.5

ESTIMATED

NORMAL MAX: 15.5 19.4 31.1 47.2 64.1 77.1 82.4 74.4 65.4 52.4 35.5 22.5

NORMAL MIN: -1.5 0.5 9.7 23.6 37.4 44.1 54.3 52.0 42.4 29.1 14.7 3.5

	D	F	J	M	A	M
30	30	53	75	93	201	
31	40	56	76	94	202	
32	41	57	77	95	203	
33	42	57	77	96	204	
34	43	57	77	97	205	
35	43	58	78	98	206	
36	44	59	80	99	207	
37	45	59	81	100	208	
38	46	60	83	101	209	
39	47	61	83	102	210	
40	48	62	84	103	211	
41	49	63	85	104	212	
42	50	64	86	105	213	
43	51	65	87	106	214	
44	52	66	88	107	215	
45	53	67	89	108	216	
46	54	68	90	109	217	
47	55	69	91	110	218	
48	56	70	92	111	219	
49	57	71	93	112	220	
50	58	72	94	113	221	
51	59	73	95	114	222	
52	60	74	96	115	223	
53	61	75	97	116	224	
54	62	76	98	117	225	
55	63	77	99	118	226	
56	64	78	100	119	227	
57	65	79	101	120	228	
58	66	80	102	121	229	
59	67	81	103	122	230	
60	68	82	104	123	231	
61	69	83	105	124	232	
62	70	84	106	125	233	
63	71	85	107	126	234	
64	72	86	108	127	235	
65	73	87	109	128	236	
66	74	88	110	129	237	
67	75	89	111	130	238	
68	76	90	112	131	239	
69	77	91	113	132	240	
70	78	92	114	133	241	
71	79	93	115	134	242	
72	80	94	116	135	243	
73	81	95	117	136	244	
74	82	96	118	137	245	
75	83	97	119	138	246	
76	84	98	120	139	247	
77	85	99	121	140	248	
78	86	100	122	141	249	
79	87	101	123	142	250	
80	88	102	124	143	251	
81	89	103	125	144	252	
82	90	104	126	145	253	
83	91	105	127	146	254	
84	92	106	128	147	255	
85	93	107	129	148	256	
86	94	108	130	149	257	
87	95	109	131	150	258	
88	96	110	132	151	259	
89	97	111	133	152	260	
90	98	112	134	153	261	
91	99	113	135	154	262	
92	100	114	136	155	263	
93	101	115	137	156	264	
94	102	116	138	157	265	
95	103	117	139	158	266	
96	104	118	140	159	267	
97	105	119	141	160	268	
98	106	120	142	161	269	
99	107	121	143	162	270	
100	108	122	144	163	271	

CROP STAGE JULIAN DATES FOR CROP: SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN CO: SASKATOON

LATITUDE: 52.20

OBSERVED

NORMAL MAX: 9.7 15.8 27.5 49.3 65.1 72.3 79.5 77.4 65.5 52.9 30.7 17.1

NORMAL MIN: -9.4 -4.5 7.5 26.8 38.5 46.8 52.2 49.5 39.7 29.1 13.1 -0.9

ESTIMATED

NORMAL MAX: 10.0 13.5 25.9 44.0 62.9 77.4 83.8 80.3 67.8 49.8 30.9 16.4

NORMAL MIN: -7.8 -5.6 4.6 20.0 36.5 49.6 55.9 53.6 43.4 28.0 11.6 -1.6

	P	E	J	H	S	R
100	120	140	164	180	188	
101	120	140	164	180	188	
102	120	141	164	180	188	
103	120	141	164	180	188	
104	121	141	164	180	188	
105	21	141	164	181	188	
106	21	141	164	181	188	
107	122	141	164	181	188	
108	122	141	164	181	189	
109	123	141	164	181	189	
110	123	142	165	181	189	
111	124	142	165	181	189	
112	124	142	165	182	189	
113	125	142	165	182	190	
114	126	143	166	182	190	
115	126	143	166	183	190	
116	127	143	166	183	191	
117	128	144	167	183	191	
118	129	144	167	184	191	
119	129	145	167	184	192	
120	130	145	168	185	192	
121	131	146	168	185	193	
122	132	147	169	186	194	
123	133	147	169	187	194	
124	133	148	170	187	195	
125	134	149	171	188	196	
126	135	149	171	188	196	
127	136	150	172	189	197	
128	137	151	173	190	198	
129	138	152	173	191	199	

CROP STAGE JULIAN DATES FOR CROP: SH DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: SASKATCHEWAN CC: SASKATOON

LATITUDE: 52.20

OBSERVED

NORMAL MAX: 9.7 15.8 27.5 49.3 65.1 72.3 79.5 77.4 65.5 52.9 30.7 17.1

NORMAL MIN: -9.4 -4.5 7.5 26.4 38.5 46.8 52.2 49.5 39.7 29.1 13.1 -0.9

ESTIMATED

NORMAL MAX: 10.0 13.5 25.9 44.0 62.9 77.4 83.8 80.3 67.4 49.5 30.9 15.4

NORMAL MIN: -7.2 -5.2 4.6 20.0 36.5 49.6 55.9 53.6 43.4 28.0 11.6 -1.6

	P	E	J	M	A	M
130	139	153	174	192	200	
131	140	153	175	193	201	
132	141	154	176	194	202	
133	142	155	177	195	203	
134	143	156	177	195	204	
135	144	157	178	197	205	
136	144	158	179	198	206	
137	145	159	180	199	207	
138	146	160	181	201	208	
139	147	161	182	202	209	
140	148	162	183	203	211	
141	149	164	184	204	212	
142	150	165	185	205	213	
143	151	166	186	206	214	
144	152	167	187	208	215	
145	152	168	188	209	217	
146	153	169	189	210	218	
147	154	170	191	211	219	
148	155	172	192	213	221	
149	156	173	193	214	222	
150	157	174	194	215	223	
151	158	175	196	216	225	
152	159	177	197	218	227	
153	160	178	198	219	227	
154	161	179	199	220	229	
155	162	180	200	221	230	
156	163	181	202	222	231	
157	164	183	203	222	232	
158	164	184	204	225	234	
159	165	185	205	226	235	

CROP STAGE JULIAN DATES FOR CROP: SH DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN NC:SCOTT  
 LATITUDE: 52.40

OBSERVED

NORMAL MAX:	10.0	16.9	24.2	49.6	65.1	72.0	79.5	77.0	65.1	53.2	31.3	18.0
NORMAL MIN:	-8.1	-3.6	8.1	26.1	37.4	45.9	51.1	48.2	38.8	28.2	12.6	-0.2

ESTIMATED

NORMAL MAX:	11.2	14.6	26.4	44.5	62.9	77.1	83.3	77.8	67.6	50.0	31.6	17.4
NORMAL MIN:	-6.8	-4.4	5.5	20.3	36.0	48.4	54.2	51.8	41.9	27.2	11.5	-1.0

	P	F	J	M	A	M
90	11	11	140	164	180	188
91	11	11	140	164	180	188
92	11	11	140	164	180	188
93	11	11	140	164	180	188
94	11	11	140	164	180	188
95	11	11	140	164	180	188
96	11	11	140	164	180	188
97	11	11	140	164	180	188
98	11	11	140	164	180	188
99	11	11	140	164	180	188
100	11	11	140	164	180	188
101	11	11	140	164	180	188
102	11	11	140	164	180	188
103	12	12	140	164	180	188
104	12	12	140	164	180	188
105	12	12	140	164	180	188
106	12	12	140	164	180	188
107	12	12	141	164	181	189
108	12	12	141	164	181	189
109	12	12	141	164	181	189
110	12	12	141	165	181	189
111	12	12	141	165	181	189
112	12	12	142	165	182	190
113	12	12	142	165	182	190
114	12	12	142	166	182	190
115	12	12	143	166	183	191
116	12	12	143	166	183	191
117	12	12	144	167	183	191
118	12	12	144	167	184	192
119	12	12	145	167	184	192

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CROP STAGE JULIAN DATES FOR CROP: SA DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON BMTS MODEL

LOCATION: SASKATCHEWAN WISCOTT  
LATITUDE: 52.40  
OBSERVED

NORMAL MAX:	10.0	16.9	24.2	49.6	65.1	72.0	79.5	77.0	65.1	53.2	31.3	14.0
NORMAL MIN:	-4.1	-3.6	4.1	26.1	37.4	45.9	51.1	45.2	34.8	28.2	12.6	-0.2
ESTIMATED												
NORMAL MAX:	11.2	14.6	26.3	44.5	62.9	77.1	83.3	74.8	67.5	50.0	31.5	17.4
NORMAL MIN:	-5.8	-4.4	5.5	20.3	36.0	48.4	54.2	51.8	41.9	27.2	11.5	-1.0

P	F	J	J	S	S
120	130	145	162	185	193
121	131	146	162	185	193
122	132	146	160	185	194
123	133	147	17	187	194
124	133	148	17	187	195
125	134	149	171	188	195
126	135	149	171	189	196
127	135	150	172	189	197
128	137	151	173	190	198
129	138	152	173	191	199
130	139	152	174	192	200
131	140	153	175	193	201
132	141	154	176	194	202
133	142	155	177	195	203
134	143	156	178	196	204
135	144	157	179	197	205
136	144	158	179	198	206
137	145	159	180	199	207
138	145	160	181	200	208
139	147	161	182	201	209
140	148	162	183	203	211
141	149	164	184	204	212
142	150	165	186	205	213
143	151	166	187	206	214
144	152	167	188	207	215
145	153	168	189	209	217
146	154	170	190	210	218
147	154	170	191	211	219
148	155	172	192	212	221
149	156	173	194	214	222

ORIGINAL PAGE IS  
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CROP STAGE JULIAN DATES FOR CROP: 5- DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON RMTS MODEL

LOCATION: SASKATCHEWAN CO: SCOTT

LATITUDE: 52.40

OBSERVED

NORMAL MAX: 10.0 16.9 24.2 49.6 55.1 72.0 79.5 77.0 65.1 53.2 31.3 18.0

NORMAL MIN: -8.1 -3.6 9.1 26.1 37.4 45.9 51.1 48.2 38.8 28.2 12.6 -0.2

ESTIMATED

NORMAL MAX: 11.2 14.6 26.8 44.5 52.9 77.1 53.3 79.8 67.6 50.0 31.6 17.4

NORMAL MIN: -5.8 -4.4 5.5 20.3 36.0 48.4 54.2 51.8 41.9 27.2 11.5 -1.0

	P	F	J	M	A	M
150	157	174	195	215	226	
151	158	176	196	217	225	
152	159	177	197	218	227	
153	160	178	198	219	224	
154	161	180	200	221	230	
155	162	181	202	222	231	
156	163	183	203	223	233	
157	164	184	205	225	234	
158	165	185	206	226	235	
159	166	187	207	227	237	
160	167	188	209	229	239	
161	168	189	210	230	240	
162	169	190	211	231	242	
163	170	192	213	232	244	
164	170	193	214	234	245	
165	171	194	215	235	247	
166	172	195	217	236	249	
167	173	197	218	238	251	
168	174	198	219	239	253	
169	175	199	221	241	256	
170	176	200	222	241	259	
171	177	201	223	243	149	
172	178	202	225	244	152	
173	179	203	226	245	154	
174	180	205	227	247	158	
175	181	206	229	249	158	
176	182	207	230	250	159	
177	183	208	231	252	160	
178	184	209	233	254	161	
179	185	210	234	255	162	



CROP STAGE JULIAN DATES FOR CROP: SR DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON 3MTS MODEL

LOCATION: MANITOBA SF: WINNEPEG

LATITUDE: 49.4

OBSERVED

NORMAL MAX: 4.5 15.3 24.5 47.5 63.5 73.0 79.5 77.2 65.7 53.1 31.5 16.9

NORMAL MIN: -9.0 -6.5 7.2 27.3 39.6 50.4 56.1 53.6 43.7 33.3 16.5 -0.4

ESTIMATED

NORMAL MAX: 14.0 13.3 25.6 43.6 62.4 77.0 83.5 80.2 67.9 49.9 31.1 16.5

NORMAL MIN: -3.3 -6.9 3.3 19.6 37.5 52.3 50.1 50.7 44.5 32.2 14.3 -0.5

	P	F	J	J	S	R
90	121	142	155	180	172	
91	121	142	155	180	172	
92	121	142	155	180	172	
93	121	142	155	180	172	
94	121	142	155	180	172	
95	121	142	155	180	172	
96	121	142	155	180	172	
97	121	142	155	180	172	
98	121	142	155	180	172	
99	121	142	155	180	172	
100	121	142	155	180	172	
101	121	142	155	180	172	
102	121	142	155	180	172	
103	121	142	155	180	172	
104	121	142	155	180	172	
105	121	142	155	180	172	
106	122	142	155	180	172	
107	122	142	155	180	172	
108	123	142	155	180	172	
109	124	142	155	180	172	
110	124	143	155	180	172	
111	125	143	155	180	172	
112	125	144	155	180	172	
113	126	144	155	180	172	
114	127	144	157	180	172	
115	127	144	157	180	172	
116	128	144	157	185	172	
117	128	144	157	185	172	
118	129	144	158	185	172	
119	129	144	158	185	172	

CROP STAGE JULIAN DATES FOR CROP: SA DERIVED FROM CLIMATIC NORMALS ADJUSTED TO A ROBERTSON BATS MODEL.

LOCATION: MANTO-A SE: 41100000

LATITUDE: 40.8°

UNRECORDED

NORMAL MAX: 8.5 15.3 24.6 47.5 63.5 73.0 79.5 77.2 65.7 53.1 31.5 16.9

NORMAL MIN: -9.9 -6.5 7.2 27.3 39.8 50.4 56.1 53.6 43.7 33.3 16.5 -0.4

ESTIMATED

NORMAL MAX: 11.0 13.3 25.5 43.5 52.4 77.0 83.5 80.2 67.9 44.4 31.1 16.5

NORMAL MIN: -1.2 -6.4 3.3 14.6 37.5 52.3 60.1 54.7 44.5 32.2 14.3 -0.5

	P	F	J	M	A	M
120	130	145	150	165	185	193
121	131	147	150	167	187	194
122	132	147	150	167	187	195
123	133	148	171	184	195	
124	134	148	171	184	195	
125	134	148	171	184	195	
126	135	148	172	185	195	
127	135	148	172	185	195	
128	137	148	172	185	195	
129	137	148	172	185	195	
130	138	148	174	185	195	
131	138	148	174	185	195	
132	140	148	175	185	195	
133	141	148	176	185	195	
134	143	148	177	185	195	
135	143	148	177	185	195	
136	144	148	178	185	195	
137	144	148	178	185	195	
138	145	148	179	185	195	
139	145	148	179	185	195	
140	147	148	180	185	195	
141	148	148	181	185	195	
142	148	148	181	185	195	
143	149	148	182	185	195	
144	149	148	182	185	195	
145	150	148	183	185	195	
146	151	148	184	185	195	
147	152	148	185	185	195	
148	153	148	186	185	195	
149	154	148	187	185	195	
150	155	148	188	185	195	
151	155	148	189	185	195	
152	156	148	190	185	195	
153	156	148	191	185	195	

CROP STAGE JULIAN DATES FOR CROP: S4 DERIVED FROM  
CLIMATIC NORMALS APPLIED TO A ROBERTSON RMTS MODEL

LOCATION: MANITOBA SF: WINNIPEG  
LATITUDE: 49.81

OBSERVED  
NORMAL MAX: 0.5 15.3 24.6 47.5 63.5 73.0 79.5 77.2 65.7 53.1 31.5 16.4  
NORMAL MIN: -9.0 -6.5 7.2 27.3 39.6 50.4 56.1 53.6 43.7 33.3 16.5 -0.4  
ESTIMATED  
NORMAL MAX: 10.0 13.3 25.6 43.6 62.4 77.0 83.5 80.2 67.9 49.9 31.1 16.5  
NORMAL MIN: -8.7 -6.4 3.3 19.6 37.5 52.3 60.1 58.7 48.5 32.2 14.3 -0.5

	D	F	J	M	A	M
150	156	172	192	213	221	
151	157	173	193	214	222	
152	158	174	194	215	223	
153	159	175	195	216	224	
154	160	175	195	216	225	
155	161	176	196	217	225	
156	162	177	197	218	226	
157	163	178	198	219	227	
158	164	179	199	220	228	
159	165	180	200	221	229	
160	166	181	201	222	230	
161	167	182	202	223	231	
162	168	183	203	224	232	
163	169	184	204	225	233	
164	170	185	205	226	234	
165	171	186	206	227	235	
166	172	187	207	228	236	
167	173	188	208	229	237	
168	174	189	209	230	238	
169	175	190	210	231	239	
170	176	191	211	232	240	
171	177	192	212	233	241	
172	178	193	213	234	242	
173	179	194	214	235	243	
174	181	195	215	236	244	
175	181	196	217	237	245	
176	182	198	218	238	246	
177	183	199	220	240	247	
178	184	200	221	241	250	
179	185	201	222	242	252	

ORIGINAL PAGE IS  
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CROP STAGE MATURITY DATES FOR CROP: SE DERIVED FROM CLIMATIC NORMALS ADJUSTED TO A ROBERTSON-HMTS MODEL

LOCATION: MANITOBA SCANDIEN  
 LATITUDE: 49.2

OBSERVED													
NORMAL MAX:	0.5	15.3	24.0	47.8	63.7	72.5	79.5	77.4	65.7	53.2	31.1	17.1	
NORMAL MIN:	-0.2	-5.6	7.5	27.0	38.4	48.9	54.5	51.8	41.5	31.3	14.7	-0.8	
ESTIMATED													
NORMAL MAX:	0.0	13.2	25.5	43.5	62.4	77.0	83.6	80.2	67.9	49.4	31.1	16.4	
NORMAL MIN:	-1.7	-5.1	2.1	20.0	37.1	51.1	58.0	56.1	45.4	30.1	12.9	-1.1	

	P	F	J	M	S	O
00	1	1	1	1	1	1
01	1	1	1	1	1	1
02	1	1	1	1	1	1
03	1	1	1	1	1	1
04	1	1	1	1	1	1
05	1	1	1	1	1	1
06	1	1	1	1	1	1
07	1	1	1	1	1	1
08	1	1	1	1	1	1
09	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1
22	1	1	1	1	1	1
23	1	1	1	1	1	1
24	1	1	1	1	1	1
25	1	1	1	1	1	1
26	1	1	1	1	1	1
27	1	1	1	1	1	1
28	1	1	1	1	1	1
29	1	1	1	1	1	1
30	1	1	1	1	1	1
31	1	1	1	1	1	1
32	1	1	1	1	1	1
33	1	1	1	1	1	1
34	1	1	1	1	1	1
35	1	1	1	1	1	1
36	1	1	1	1	1	1
37	1	1	1	1	1	1
38	1	1	1	1	1	1
39	1	1	1	1	1	1
40	1	1	1	1	1	1
41	1	1	1	1	1	1
42	1	1	1	1	1	1
43	1	1	1	1	1	1
44	1	1	1	1	1	1
45	1	1	1	1	1	1
46	1	1	1	1	1	1
47	1	1	1	1	1	1
48	1	1	1	1	1	1
49	1	1	1	1	1	1
50	1	1	1	1	1	1
51	1	1	1	1	1	1
52	1	1	1	1	1	1
53	1	1	1	1	1	1
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55	1	1	1	1	1	1
56	1	1	1	1	1	1
57	1	1	1	1	1	1
58	1	1	1	1	1	1
59	1	1	1	1	1	1
60	1	1	1	1	1	1
61	1	1	1	1	1	1
62	1	1	1	1	1	1
63	1	1	1	1	1	1
64	1	1	1	1	1	1
65	1	1	1	1	1	1
66	1	1	1	1	1	1
67	1	1	1	1	1	1
68	1	1	1	1	1	1
69	1	1	1	1	1	1
70	1	1	1	1	1	1
71	1	1	1	1	1	1
72	1	1	1	1	1	1
73	1	1	1	1	1	1
74	1	1	1	1	1	1
75	1	1	1	1	1	1
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77	1	1	1	1	1	1
78	1	1	1	1	1	1
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83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1
86	1	1	1	1	1	1
87	1	1	1	1	1	1
88	1	1	1	1	1	1
89	1	1	1	1	1	1
90	1	1	1	1	1	1
91	1	1	1	1	1	1
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
95	1	1	1	1	1	1
96	1	1	1	1	1	1
97	1	1	1	1	1	1
98	1	1	1	1	1	1
99	1	1	1	1	1	1
100	1	1	1	1	1	1

143

CROP STAGE JULIAN DATES FOR CROP: SM DERIVED FROM CLIMATIC NORMALS (APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MANITOBA SC: 0000EN  
 LATITUDE: 49.20

OBSERVED  
 NORMAL MAX: 9.5 15.3 24.0 47.8 63.7 72.5 79.5 77.4 65.7 53.2 31.1 17.1  
 NORMAL MIN: -9.5 -5.6 7.5 27.0 38.8 48.9 54.5 51.8 41.5 31.3 14.7 -0.8  
 ESTIMATED  
 NORMAL MAX: 9.9 13.2 25.5 43.5 62.4 77.0 83.6 80.2 67.9 49.9 31.1 16.4  
 NORMAL MIN: -2.7 -6.1 4.1 20.0 37.1 51.1 58.0 56.1 45.9 30.1 12.4 -1.1

	D	F	J	M	A	M
120	130	146	160	177	194	214
121	131	147	171	187	203	221
122	132	148	171	188	205	222
123	133	148	171	188	205	222
124	134	149	171	188	205	222
125	134	149	172	189	206	223
126	135	150	172	190	207	224
127	135	150	173	191	208	225
128	137	151	174	192	209	226
129	138	151	174	192	209	226
130	138	151	175	193	210	227
131	140	152	175	193	210	227
132	141	152	177	195	212	229
133	142	153	177	195	212	229
134	143	153	178	196	213	230
135	144	154	179	197	214	231
136	144	154	180	198	215	232
137	145	155	181	199	216	233
138	145	155	182	200	217	234
139	147	156	183	201	218	235
140	148	156	184	202	219	236
141	148	156	185	203	220	237
142	149	157	186	204	221	238
143	150	157	187	205	222	239
144	151	157	188	206	223	240
145	152	158	189	207	224	241
146	153	158	190	208	225	242
147	154	159	191	209	226	243
148	155	159	192	210	227	244
149	155	172	193	211	228	245

COOP STAGE JULIAN DATES FOR COOP: 54 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON HMTS MODEL

LOCATION: MANITOBA SCIBORGEN

LATITUDE: 49.2'

OBSERVED

NORMAL MAX:	9.5	15.3	24.0	47.8	63.7	72.5	79.5	77.4	65.7	53.2	31.1	17.1
NORMAL MIN:	-9.5	-5.6	7.5	27.0	38.8	49.9	54.5	51.8	41.5	31.3	14.7	-0.8
ESTIMATED												
NORMAL MAX:	9.9	13.2	25.5	43.5	62.4	77.0	83.6	80.2	67.9	49.9	31.1	15.4
NORMAL MIN:	-4.1	-6.1	4.1	20.0	37.1	51.1	58.0	56.1	45.9	30.1	12.9	-1.1

	D	F	J	M	A	M
150	157	173	184	215	223	224
151	158	174	185	216	224	224
152	159	175	186	217	225	225
153	160	176	187	218	225	225
154	161	177	188	219	226	226
155	161	178	189	220	226	226
156	162	179	190	221	227	227
157	163	180	191	222	227	227
158	164	181	192	223	228	228
159	165	182	193	224	228	228
160	166	183	194	225	229	229
161	167	184	195	226	229	229
162	168	185	196	227	230	230
163	169	186	197	228	230	230
164	170	187	198	229	231	231
165	171	188	199	230	231	231
166	172	189	200	231	232	232
167	173	190	201	232	232	232
168	174	191	202	233	233	233
169	175	192	203	234	233	233
170	176	193	204	235	234	234
171	177	194	205	235	234	234
172	178	195	206	236	235	235
173	179	196	207	237	235	235
174	180	197	208	238	236	236
175	181	198	209	238	236	236
176	182	199	210	239	237	237
177	183	200	211	240	237	237
178	184	201	212	241	238	238
179	185	202	213	242	238	238

CROP STAGE JULIAN DATES FOR CROPS: SA DERIVED FROM CLIMATIC NORMALS ADJUSTED TO A ROBERTSON BMFS MODEL

LOCATION: MARIETTA S.W.-ANDON

LATITUDE: 29.85  
 OBSERVED  
 NORMAL MAX: 0.3 15.3 27.9 44.2 63.7 72.1 79.5 77.0 65.7 52.7 30.9 16.4  
 NORMAL MIN: -4.4 -5.4 7.3 26.8 38.7 48.4 54.0 51.1 40.8 30.6 14.2 -0.8  
 ESTIMATED  
 NORMAL MAX: 0.7 13.2 25.5 43.5 62.4 77.0 83.5 81.0 67.7 49.6 30.8 16.2  
 NORMAL MIN: -7.0 -7.9 4.3 19.9 36.8 50.5 57.2 55.3 45.1 29.4 12.5 -1.1

	P	F	J	M	A	M
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0

ORIGINAL PAGE IS OF POOR QUALITY

PROP STAGE JULIAN DATES FOR C-OPS 54 DERIVED FROM CLIMATIC NORMALS APPLIED TO A ROBERTSON 4MFS MODEL

LOCATION: MATITOMA SW-3-10001

LATITUDE: 20.85

OBSERVED

NORMAL MAX: 9.4 15.3 27.3 43.2 53.7 72.1 79.5 77.0 65.7 52.7 30.4 16.9

NORMAL MIN: -4.4 -5.4 7.3 25.8 34.7 44.4 54.0 51.1 40.4 30.6 14.2 -0.4

ESTIMATED

NORMAL MAX: 9.7 13.2 25.5 43.6 52.4 77.0 83.5 80.0 67.7 44.0 30.4 16.2

NORMAL MIN: -7.4 -5.9 4.3 14.9 36.4 50.5 57.2 55.3 43.1 29.4 12.5 -1.1

	D	F	J	M	S	O
1	30	30	53	75	106	201
2	31	40	56	76	106	202
3	32	41	55	77	107	203
4	33	42	55	77	107	204
5	34	43	55	76	107	205
6	35	44	55	76	108	206
7	36	44	55	76	108	207
8	37	45	55	76	108	208
9	38	45	55	76	108	209
10	39	46	55	76	108	210
11	40	46	55	76	108	211
12	41	46	55	76	108	212
13	42	46	55	76	108	213
14	43	46	55	76	108	214
15	44	46	55	76	108	215
16	45	46	55	76	108	216
17	46	46	55	76	108	217
18	47	46	55	76	108	218
19	48	46	55	76	108	219
20	49	46	55	76	108	220
21	50	46	55	76	108	221
22	51	46	55	76	108	222
23	52	46	55	76	108	223
24	53	46	55	76	108	224
25	54	46	55	76	108	225
26	55	46	55	76	108	226
27	56	46	55	76	108	227
28	57	46	55	76	108	228
29	58	46	55	76	108	229
30	59	46	55	76	108	230