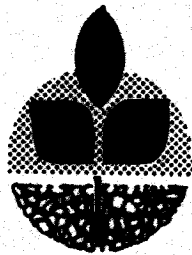


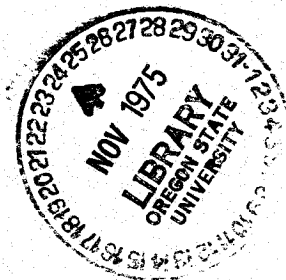
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# Soil Temperature of Oregon's Agricultural Regions



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Agricultural Experiment Station  
Oregon State University, Corvallis



SOIL TEMPERATURE OF OREGON'S AGRICULTURAL REGIONS

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Oregon State University

In Co-operation With

The Agronomic Crop Science Department

Oregon State University

and

The Agricultural Experimental Station

Oregon State University

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ACKNOWLEDGEMENT

I express thanks to Professor Wheeler Calhoun for his review and advise on this paper and for his assistance in its assembly. Robert L. Jackson is recognized for his large contribution in extracting and assembling data from original soil temperature records.

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## SOIL TEMPERATURE OF OREGON'S AGRICULTURAL REGIONS

### 1. Measurement Methods

This report is an attempt to bring all the soil temperature information for the State of Oregon under one cover and in a form useful to farm operators and to research crop specialists. Soil temperatures have been systematically measured and recorded in only a few places and the period of these records is too short at some locations to develop averages of as good reliability as we would like.

The United States Weather Bureau organized an Agricultural Weather Service in Oregon in 1962. In the mid-sixties, the Weather Bureau, in co-operation with the Oregon Agricultural Experiment Station, established many of the soil temperature stations which reported information for this paper.

All records reported are from instruments sensors buried under bare soil. Palmer<sup>1</sup> soil thermometers, a type that indicates maximum, minimum, and current temperature are used. The reporting stations are located so that one (or more) observation is made in each of the important farming areas and in each of the climatic regions served by the Oregon Agricultural Weather Service.

There is a general practice that a station having only one soil thermometer will have it placed at the 4-inch depth, and a station having two or more soil thermometers will have one at the 4-inch depth. Four inches equals about 10.2 centimeters and the 10-centimeters depth is a world standard. The North Willamette Experiment Station varies from this general rule by having soil thermometers at the 2- and 8- inch depths.

Because these soil temperature observations were established to serve agricultural needs, an effort has been made to operate all stations at least throughout the growing season. Records for Pitchford Boy's Ranch, near Roseburg, Corvallis, North Willamette Experiment Station, Pendleton Experiment Station, and Medford are for 12 months per year; all others are essentially for the growing season of each year.

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<sup>1</sup> The trade name is used here only as description of the instrument; this paper does not endorse any type of soil thermometer.

The temperature of bare soil is affected by many things- Solar radiation, warm air advection, and the latent heat of condensation all contribute to warming of the soil. Cooling is accomplished by long wave radiation from the soil at night<sup>2</sup>, convection, cold air advection, evaporation, and some other small contributors. The soil temperature is likely to be somewhat different in a crop area than when the soil surface is bare.

Soil temperature measurements under a bare surface are rather a standard operation and though they differ from field conditions, they may constitute a useful tool in crop management from planting date into the semi-mature plant stage. Particularly before and at planting time, the "standard" soil temperatures are useful because the seed bed is a bare soil condition and its temperature is likely close to the temperature measurements from a bare soil plot. Until the crop is tall enough to cause considerable shade and appreciably alter air movement near the soil surface, field soil temperature should be about the same as the "standard" soil temperature measurement.

## II. Application of Data

If a crop producer knows the average soil temperature of his region for a period of years and knows the current day-to-day soil temperature, he is able to determine if the current seed bed condition is typical, cooler than average or warmer than the climatic average. This is useful knowledge in planting and managing a crop. By means of present day extended weather forecasts, it is possible to make estimates of the trend of the soil temperature which further refines the management capability of the farmer when he has knowledge of the climatic average of soil temperature plus current soil temperature information.

Some soil temperature conditions found to be associated with vegetable seed germination are as follows:

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<sup>2</sup> Long wave radiation from the soil is always occurring, day and night, but its main effect is noticed at night.

CROP	MINIMUM °F	OPTIMUM RANGE °F	OPTIMUM °F	MAXIMUM °F
Asparagus	50	60-85	75	95
Bean	60	60-85	80	95
Bean, Lima	60	65-85	85	85
Beet	40	50-85	85	95
Cabbage	40	45-95	85	100
Carrot	40	45-85	80	95
Cauliflower	40	45-85	80	100
Corn	50	60-95	95	105
Cucumber	60	60-95	95	105
Lettuce	35	40-80	75	85
Muskmelon	60	75-95	90	100
Onion	35	50-95	75	95
Parsley	40	50-85	75	90
Pea	40	40-75	75	85
Pumpkin	60	70-90	95	100
Spinach	35	45-75	70	85
Squash	60	70-95	95	100
Tomato	50	60-85	85	95
Turnip	40	60-105	85	105
Watermelon	60	70-95	95	105

Values of this table are from the Handbook for Vegetable Growers by J. E. Knott.

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Soil temperature also influences the movement of moisture in the soil and the rate of evaporative water loss from the soil. Knowledge of climatic averages of soil temperature and of current soil temperature should be a useful tool in the design and operation of an irrigation system.

At harvest time, soil temperatures are of value in safeguarding the crop in various operations. The long-term averages of soil temperature

are essential in designing storage facilities for such crops as potatoes. The handling and preparation of potatoes for safe storage are dependent upon field soil temperature because the tubers are about equal in temperature to the soil.

There is potentially a very large dollar saving available to potato growers in planning harvest operations based on soil temperature. Careful use of soil temperature information and forecasts of variation in these temperatures should reduce bruising damage to tubers. It has been estimated that this kind of harvest loss amounts to millions of dollars annually.



Oregon Soil Temperature Stations

• Pendleton Experiment Station

• Experiment Station Moro Site

• North Willamette Experiment Station

• Hyslop Field Laboratory Corvallis, Oregon

• Agri-Climate Station Madras, Oregon

• Central Oregon Experiment Station

• Pitchford Boys Ranch Roseburg, Oregon

• Weather Service Office Medford, Oregon

• Weather Service Office Klamath Falls, Oregon

Average 2-Inch Soil Temperature  
 Hyslop Farm, Corvallis, Oregon

11 Year Average

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	44	39	44	38	45	40	57	45	64	48	76	56	85	61	90	67	82	62	69	54	55	46	46	41
2	43	38	45	38	47	40	57	43	66	48	78	58	83	62	88	67	81	63	70	53	54	46	45	41
3	41	37	44	38	49	39	59	42	68	49	80	58	86	63	89	67	82	62	69	53	54	45	45	42
4	40	37	44	39	49	40	63	43	71	49	79	58	89	64	89	67	82	61	69	52	54	46	45	40
5	40	36	44	39	50	41	61	45	68	50	78	58	88	65	87	66	83	61	67	53	53	45	44	40
6	39	36	44	38	51	40	60	46	67	45	80	59	90	64	91	67	79	62	68	53	51	44	46	41
7	39	35	45	37	52	40	59	44	69	50	78	60	87	65	91	67	79	61	68	53	50	44	45	40
8	39	35	46	38	52	40	61	45	73	51	78	60	89	65	91	67	79	60	67	53	51	45	44	39
9	39	35	47	38	52	40	61	46	73	52	76	60	85	62	91	67	80	59	68	53	51	45	44	39
10	39	35	47	38	50	41	57	46	71	52	79	59	88	63	93	68	80	59	65	52	52	47	43	40
11	38	35	47	39	53	41	60	46	71	51	76	59	84	64	94	68	80	60	65	53	53	47	43	39
12	40	35	47	39	53	43	60	44	75	52	78	58	86	64	90	67	79	59	64	52	53	47	42	38
13	39	35	48	40	52	41	57	44	71	52	81	59	88	63	88	66	80	59	62	51	52	46	41	38
14	42	37	47	40	53	42	61	45	71	52	81	60	91	65	87	65	78	56	62	50	50	46	40	38
15	44	39	46	40	51	43	61	46	72	52	80	61	87	65	89	65	76	58	61	50	50	45	41	38
16	44	39	47	41	56	43	61	45	71	53	81	61	89	65	90	65	77	57	62	50	50	44	41	38
17	43	38	49	41	55	42	57	44	74	53	84	61	89	64	87	65	78	59	60	48	50	45	41	37
18	44	40	49	41	54	41	60	45	75	53	84	61	92	66	87	64	72	58	60	48	48	43	40	36
19	45	40	49	41	54	41	58	45	76	54	85	62	91	66	85	64	72	56	59	47	48	45	41	37
20	44	40	47	41	55	40	61	44	74	55	84	62	90	66	85	64	72	56	59	47	49	43	41	39
21	43	40	50	40	56	42	59	45	74	55	83	62	87	66	84	65	72	55	57	48	47	42	42	39
22	43	40	49	39	57	40	63	46	75	55	84	62	89	65	86	64	74	56	58	49	47	41	45	40
23	43	39	49	39	55	43	63	47	74	54	81	62	89	65	85	64	72	56	57	50	47	42	44	41
24	43	39	51	39	56	43	63	47	75	55	81	61	92	65	83	64	73	56	49	49	47	42	45	40
25	43	39	50	39	57	42	62	48	76	54	80	61	91	65	81	63	74	56	57	48	48	42	44	40
26	44	39	51	41	54	43	62	48	77	55	81	61	89	66	82	62	72	55	57	46	47	42	44	41
27	44	39	49	41	56	43	64	47	77	55	81	61	90	66	81	64	73	55	56	45	46	42	44	40
28	43	39	49	41	55	44	65	48	78	56	79	60	92	66	82	62	73	54	53	47	45	42	44	40
29	43	39	49	41	57	45	66	47	78	57	80	59	92	67	84	61	73	55	55	46	46	41	43	40
30	42	39	49	41	56	44	64	47	77	56	82	61	93	68	84	62	69	55	55	46	45	42	42	39
31	43	38	49	41	58	44	64	47	76	56	82	61	90	67	81	62	62	55	54	47	47	42	42	39

Average 4-Inch Soil Temperature  
Hyslop Farm, Corvallis, Oregon

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	42	39	42	39	44	41	53	45	59	49	70	58	77	63	83	70	76	64	66	57	53	48	44	43
2	41	39	42	38	45	41	52	45	60	49	72	59	78	64	83	70	75	64	65	56	52	48	44	42
3	40	39	42	38	46	40	54	43	61	50	74	59	79	65	83	69	75	65	65	55	52	47	44	42
4	40	38	44	40	46	40	55	44	63	55	73	60	82	66	82	69	76	64	65	55	51	48	43	41
5	39	37	43	40	47	41	54	46	63	52	73	60	81	66	81	68	76	64	63	56	51	48	43	41
6	38	37	43	39	46	40	55	47	62	51	74	60	82	67	83	68	75	65	64	55	49	46	44	42
7	38	37	43	39	47	41	55	45	63	51	72	62	80	67	84	69	74	64	64	54	49	45	44	42
8	38	36	43	39	48	41	57	46	66	53	73	61	82	67	84	69	73	64	63	56	49	46	43	41
9	38	36	44	38	48	41	55	48	67	53	71	61	79	66	84	70	74	63	64	56	50	46	43	41
10	38	37	44	40	47	42	53	47	65	53	73	60	82	65	85	71	73	62	62	55	50	47	43	41
11	38	36	44	40	49	44	55	46	65	54	71	60	79	66	85	68	74	63	61	54	50	48	42	40
12	39	36	44	41	49	43	56	45	68	54	72	60	80	66	83	70	74	61	61	54	51	48	42	40
13	38	36	45	41	48	42	54	45	65	54	74	60	81	66	82	69	73	61	59	53	50	47	41	39
14	40	37	45	41	48	42	56	46	65	54	75	61	83	68	81	68	72	61	59	52	49	47	41	39
15	41	39	44	41	48	43	55	46	66	54	75	62	81	68	82	68	71	61	59	52	49	47	40	39
16	41	39	45	42	50	43	56	47	67	54	75	62	82	68	82	68	71	60	59	51	49	46	40	39
17	42	40	45	42	50	47	54	46	68	55	77	63	82	67	80	67	71	61	58	50	49	45	41	38
18	42	40	46	43	49	43	55	45	69	55	76	63	84	68	81	67	68	60	57	49	48	44	39	38
19	43	41	46	42	50	42	53	46	70	56	79	63	83	68	79	67	68	60	56	49	47	44	39	38
20	43	40	46	42	49	41	55	45	68	57	78	63	83	68	79	66	67	59	56	49	47	44	40	39
21	43	40	47	41	50	43	55	46	69	57	77	63	81	68	78	68	67	58	55	51	46	44	41	40
22	42	41	46	41	52	43	57	46	70	57	78	64	82	68	79	66	68	58	55	49	46	43	43	40
23	42	40	46	40	51	44	57	49	68	57	76	63	82	67	79	67	67	59	55	51	45	43	43	41
24	41	39	47	41	51	44	57	49	69	56	75	62	83	68	78	66	67	58	56	50	46	42	43	41
25	42	40	47	41	52	43	57	49	69	56	74	62	84	68	75	66	68	59	55	50	47	44	43	41
26	42	40	47	42	50	44	58	50	71	57	76	63	83	69	77	65	67	58	54	49	46	43	43	41
27	42	39	46	42	52	44	59	49	71	57	75	63	83	68	75	65	68	58	53	48	45	42	42	41
28	41	39	41	37	52	45	59	49	71	57	74	62	85	69	76	65	68	58	52	49	44	41	42	40
29	41	39	41	37	52	45	60	48	72	58	74	61	85	69	77	64	68	57	53	48	44	42	42	41
30	42	39	42	39	52	45	60	48	71	58	75	62	85	70	77	65	66	58	53	47	44	42	41	40
31	41	39			53	45			71	58			84	70	75	64			53	48			41	40

Average 8-Inch Soil Temperature  
Hyslop Farm, Corvallis, Oregon

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	42	39	40	39	43	41	49	47	56	50	65	60	71	65	77	73	72	67	64	60	52	50	45	43
2	40	39	40	38	43	40	49	45	56	51	66	60	72	66	77	73	71	67	63	60	52	50	44	43
3	40	39	41	38	43	39	50	45	58	52	67	61	73	67	77	72	71	67	64	60	52	49	44	43
4	39	38	41	40	42	40	51	45	59	53	67	62	76	68	77	72	71	67	63	60	51	49	43	42
5	39	38	42	41	43	41	52	47	58	54	67	62	75	69	76	71	72	67	62	59	51	50	43	41
6	39	38	41	40	44	41	51	48	58	54	68	62	75	69	76	71	71	67	62	59	51	50	43	42
7	39	37	41	39	45	41	51	47	58	54	67	63	74	70	77	72	71	66	62	58	50	48	43	41
8	38	37	42	40	45	41	51	47	60	54	68	63	75	69	78	72	70	66	62	59	51	49	42	41
9	38	36	41	39	45	41	51	48	61	55	67	63	75	69	78	73	70	66	62	59	50	49	42	40
10	38	37	41	39	45	43	50	48	61	55	68	61	75	68	78	73	70	65	62	58	51	49	42	41
11	38	37	42	39	45	43	51	47	60	55	67	63	74	69	79	73	70	65	61	57	51	49	42	41
12	38	36	42	40	46	43	51	47	62	55	67	62	74	69	78	73	70	65	60	57	51	49	42	41
13	38	36	42	40	45	43	51	47	61	56	68	62	75	69	77	72	69	65	59	57	51	49	41	40
14	39	36	42	40	46	42	52	47	61	55	69	63	76	71	76	71	68	64	60	55	49	48	42	41
15	40	38	42	40	46	43	52	47	61	56	69	63	75	70	76	71	67	64	60	55	49	47	40	39
16	40	38	43	41	48	44	52	49	62	57	70	64	76	70	76	71	67	63	59	55	49	46	40	39
17	40	39	44	42	48	44	51	48	62	57	72	65	77	70	76	71	68	63	58	54	48	46	40	39
18	41	39	44	42	47	44	52	47	63	67	72	65	77	70	75	70	66	63	57	53	48	46	40	39
19	41	39	44	42	47	44	51	47	64	58	72	65	77	71	75	70	65	61	57	54	47	45	39	38
20	41	40	44	42	47	43	52	47	63	58	72	66	77	71	74	70	65	61	57	53	47	45	40	39
21	41	40	44	41	48	43	51	48	63	59	72	66	77	70	74	70	64	60	56	53	46	45	41	40
22	41	40	44	41	48	45	51	48	64	59	72	66	76	70	74	69	65	61	56	52	46	44	42	40
23	40	39	44	41	48	45	55	49	63	58	71	65	76	71	73	69	64	61	56	53	46	44	42	41
24	40	39	44	41	48	45	55	50	64	59	70	65	76	71	74	69	64	61	57	53	46	44	43	42
25	40	39	44	41	48	44	53	49	64	58	70	65	77	71	72	68	65	61	56	53	46	45	42	41
26	41	40	44	41	48	45	54	49	65	59	70	65	77	71	72	67	65	60	55	52	46	44	42	41
27	41	39	44	41	48	45	55	50	65	59	71	65	77	71	72	67	64	60	54	51	45	44	42	41
28	40	39	43	41	48	45	56	51	66	60	70	64	79	72	72	67	64	60	54	51	44	42	42	41
29	40	39	43	41	49	45	55	50	66	60	69	64	79	72	72	67	64	60	53	51	44	42	42	41
30	40	39	44	42	49	45	55	50	65	60	70	65	79	73	72	67	63	60	53	50	44	41	42	40
31	40	38	45	45	50	45	55	50	65	60	78	72	78	72	71	67	67	63	53	51	51	41	41	40

Weather Service for Agriculture  
Oregon State University  
Agriculture Hall 327

Hyslop Field Laboratory  
Frequency of Occurrence  
4-Inch Soil Temperature

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	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
January	31 to 40°	32%	21 to 30°	1%
	41 to 50°	66%	31 to 40°	53%
	51 to 60°	2%	41 to 50°	46%
			51 to 60°	#
February	31 to 40°	6%	31 to 40°	33%
	41 to 50°	92%	41 to 50°	67%
	51 to 60°	2%		
March	31 to 40°	1%	31 to 40°	28%
	41 to 50°	62%	41 to 50°	72%
	51 to 60°	37%	51 to 60°	#
	61 to 70°	#		
April	41 to 50°	11%	31 to 40°	3%
	51 to 60°	74%	41 to 50°	82%
	61 to 70°	15%	51 to 60°	15%
May	41 to 50°	1%	41 to 50°	24%
	51 to 60°	43%	51 to 60°	66%
	71 to 80°	35%	61 to 70°	10%
	81 to 90°	2%		
June	51 to 60°	2%	51 to 60°	44%
	61 to 70°	31%	61 to 70°	54%
	71 to 80°	45%	71 to 80°	2%
	81 to 90°	22%		
July	61 to 70°	5%	51 to 60°	8%
	71 to 80°	31%	61 to 70°	69%
	81 to 90°	62%	71 to 80°	23%
	91 to 100°	2%		

# Less than one percent

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
August	61 to 70°	9%	51 to 60°	8%
	71 to 80°	34%	61 to 70°	69%
	81 to 90°	55%	71 to 80°	23%
	91 to 100°	2%		
September	51 to 60°	5%	41 to 50°	1%
	61 to 70°	44%	51 to 60°	50%
	71 to 80°	41%	61 to 70°	48%
	81 to 90°	10%	71 to 80°	1%
October	41 to 50°	6%	31 to 40°	1%
	51 to 60°	58%	41 to 50°	42%
	61 to 70°	34%	51 to 60°	56%
	71 to 80°	2%	61 to 70°	1%
November	31 to 40°	3%	31 to 40°	13%
	41 to 50°	65%	41 to 50°	81%
	51 to 60°	32%	51 to 60°	6%
December	21 to 30°	#	21 to 30°	1%
	31 to 40°	34%	31 to 40°	50%
	41 to 50°	65%	41 to 50°	49%
	51 to 60°	1%		

# Less than one percent

Hyslop Farm, Corvallis, Oregon  
 2-Inch Soil Temperature  
 Weekly Average

Week begins	Max	Min	Week begins	Max	Min
January 1	41	37	July 2	87	64
January 8	39	35	July 9	87	64
January 15	44	39	July 16	90	65
January 22	43	39	July 23	91	66
January 29	44	38	July 30	89	67
February 5	46	38	August 6	92	67
February 12	48	40	August 13	88	65
February 19	49	40	August 20	84	64
February 26	48	40	August 27	82	62
March 5	51	40	September 3	81	61
March 12	53	42	September 10	79	58
March 19	56	42	September 17	73	57
March 26	56	44	September 24	72	55
April 2	60	44	October 1	69	53
April 9	60	46	October 8	65	52
April 16	60	45	October 15	60	48
April 23	63	47	October 22	55	48
April 30	67	48	October 29	54	46
May 7	72	51	November 5	51	45
May 14	73	53	November 12	50	45
May 21	75	55	November 19	48	42
May 28	78	57	November 26	46	42
June 4	78	59	December 3	45	41
June 11	80	60	December 10	42	39
June 18	83	62	December 17	42	38
June 25	81	61	December 24	44	40

Hyslop Farm, Corvallis, Oregon

4-Inch Soil Temperature

Weekly Average

Week begins		Max	Min	Week begins		Max	Min
January	1	40	38	July	2	81	66
January	8	38	36	July	9	81	66
January	15	42	40	July	16	82	68
January	22	42	40	July	23	84	68
January	29	42	39	July	30	83	69
February	5	43	39	August	6	84	69
February	12	45	42	August	13	81	68
February	19	46	41	August	20	78	66
February	26	45	40	August	27	76	64
March	5	48	41	September	3	75	64
March	12	49	43	September	10	73	61
March	19	51	43	September	17	68	59
March	26	52	45	September	24	67	58
April	2	55	45	October	1	63	55
April	9	54	46	October	8	61	50
April	16	55	46	October	15	57	50
April	23	58	49	October	22	54	49
April	30	61	51	October	29	52	48
May	7	66	53	November	5	50	47
May	14	68	55	November	12	49	46
May	21	70	57	November	19	46	43
May	28	72	58	November	26	43	42
June	4	73	61	December	3	43	41
June	11	74	61	December	10	41	39
June	18	77	63	December	17	41	39
June	25	75	62	December	24	42	41



Hyslop Farm, Corvallis, Oregon

8-Inch Soil Temperature

Weekly Average

Week begins	Max	Min	Week begins	Max	Min
January 1	40	38	July 2	74	68
January 8	38	36	July 9	75	69
January 15	41	39	July 16	77	70
January 22	40	39	July 23	77	71
January 29	40	39	July 30	77	72
February 5	41	40	August 6	78	72
February 12	42	41	August 13	76	71
February 19	44	41	August 20	73	69
February 26	43	41	August 27	72	67
March 5	44	41	September 3	71	67
March 12	47	43	September 10	69	64
March 19	48	44	September 17	65	61
March 26	49	45	September 24	64	60
April 2	51	46	October 1	63	59
April 9	51	47	October 8	61	57
April 16	51	48	October 15	58	54
April 23	55	50	October 22	55	52
April 30	57	52	October 29	52	50
May 7	60	55	November 5	51	49
May 14	62	57	November 12	49	47
May 21	64	59	November 19	46	45
May 28	65	60	November 26	45	43
June 4	67	63	December 3	43	41
June 11	69	63	December 10	42	40
June 18	72	65	December 17	41	39
June 25	70	65	December 24	42	41

Average 2-Inch Soil Temperature  
 North Willamette Experiment Station, Aurora, Oregon

10 Year Average

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	40	34	44	36	49	38	57	41	65	46	78	56	87	58	92	64	83	61	71	51	55	45	46	41
2	39	34	44	35	51	39	60	39	69	47	81	56	86	61	91	65	85	61	69	50	56	45	46	40
3	39	34	45	36	50	38	63	42	71	47	80	55	90	62	92	66	86	60	70	49	55	44	45	37
4	39	34	43	34	51	38	60	46	69	48	79	56	86	61	91	65	87	61	67	51	54	42	43	38
5	39	35	43	34	51	38	60	43	71	48	82	57	90	60	91	63	85	61	69	51	52	42	44	38
6	39	34	46	35	54	39	58	43	70	49	77	58	85	61	94	64	81	60	67	50	52	41	44	38
7	39	33	47	36	55	37	62	42	72	48	78	57	86	62	95	65	81	60	67	50	52	43	43	36
8	39	35	47	36	54	38	61	44	72	50	74	56	83	60	95	65	81	59	69	51	52	44	43	37
9	39	34	48	36	51	39	58	44	70	49	79	56	84	59	92	66	80	59	66	51	53	44	42	37
10	39	34	48	37	52	39	62	42	69	47	78	56	84	62	94	63	82	60	66	49	54	43	43	37
11	40	34	47	37	53	40	61	42	75	49	76	56	87	61	92	64	77	58	63	50	53	43	41	45
12	38	35	48	37	52	39	58	43	74	50	79	56	90	63	89	64	81	59	62	50	52	42	41	36
13	42	38	49	47	53	39	61	43	76	49	82	57	92	64	89	63	77	58	62	48	50	45	39	37
14	46	39	47	38	52	40	62	44	77	51	81	58	89	65	91	63	75	57	61	47	50	43	40	36
15	46	38	47	40	57	41	63	44	72	52	80	57	92	67	89	64	78	56	63	46	51	41	40	37
16	43	36	49	38	54	43	57	42	75	51	85	61	94	64	88	64	75	58	63	45	50	42	40	36
17	45	36	49	40	56	41	62	41	76	53	84	59	95	63	88	64	73	56	61	46	50	40	40	35
18	45	38	50	37	51	39	58	43	77	52	86	61	94	66	88	63	72	56	61	45	50	40	41	36
19	44	38	51	37	57	37	62	43	76	54	85	60	89	64	88	61	72	54	61	45	51	40	40	36
20	45	38	54	38	55	39	59	44	76	53	84	59	88	64	87	62	71	55	59	47	49	41	41	38
21	43	38	52	37	57	41	64	43	76	55	82	60	90	63	87	63	74	56	59	47	48	39	43	36
22	43	36	52	38	56	40	60	44	75	52	84	59	91	62	87	62	71	58	59	47	49	40	43	38
23	43	37	52	38	57	39	64	44	76	54	81	59	93	62	85	61	74	55	61	47	49	41	45	39
24	42	36	53	37	58	39	63	45	76	52	79	59	92	63	83	62	73	56	58	46	49	40	44	38
25	42	36	53	39	56	41	63	44	79	56	82	59	93	63	83	61	73	54	58	45	48	36	43	38
26	44	37	51	38	58	36	67	46	77	54	81	58	89	64	83	61	74	54	57	46	47	37	43	39
27	42	35	53	39	57	41	65	45	77	53	78	56	94	64	82	61	76	55	55	45	46	38	43	38
28	43	37	50	38	58	42	65	45	78	54	82	57	94	64	85	61	75	55	57	46	47	39	42	38
29	42	37	50	38	58	41	66	45	78	54	81	57	96	64	85	61	72	55	56	45	45	37	43	38
30	43	36			60	42	66	46	77	55	85	59	93	64	83	59	71	53	55	46	47	39	41	37
31	44	37			59	42			77	55			90	64	86	60			52	45			41	37

Weather Service for Agriculture  
Oregon State University  
Agriculture Hall 327

North Willamette Experiment Station  
Frequency of Occurrence  
2-Inch Soil Temperature

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
January	21 to 30°	5%	21 to 30°	9%
	31 to 40°	33%	31 to 40°	73%
	41 to 50°	57%	41 to 50°	18%
	51 to 60°	5%		
February	21 to 30°	2%	21 to 30°	4%
	31 to 40°	4%	31 to 40°	78%
	41 to 50°	58%	41 to 50°	18%
	51 to 60°	34%	51 to 60°	#
March	31 to 40°	1%	21 to 30°	1%
	41 to 50°	26%	31 to 40°	66%
	51 to 60°	53%	41 to 50°	32%
	61 to 70°	19%	51 to 60°	1%
	71 to 80°	1%		
April	41 to 50°	3%	31 to 40°	28%
	51 to 60°	44%	41 to 50°	66%
	61 to 70°	40%	51 to 60°	6%
	71 to 80°	12%		
	81 to 90°	1%		
May	51 to 60°	10%	31 to 40°	1%
	61 to 70°	31%	41 to 50°	48%
	71 to 80°	27%	51 to 60°	47%
	81 to 90°	26%	61 to 70°	4%
	91 to 100°	6%	71 to 80°	#
June	51 to 60°	2%	41 to 50°	6%
	61 to 70°	20%	51 to 60°	69%
	71 to 80°	27%	61 to 70°	22%
	81 to 90°	29%	71 to 80°	3%
	91 to 100°	21%		
	101 to 110°	1%		
July	61 to 70°	4%	41 to 50°	#
	71 to 80°	11%	51 to 60°	27%
	81 to 90°	24%	61 to 70°	67%
	91 to 100°	53%	71 to 80°	5%
	101 to 110°	8%	81 to 90°	1%

# Less than one percent

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
August	51 to 60°	1%	41 to 50°	#
	61 to 70°	5%	51 to 60°	36%
	71 to 80°	13%	61 to 70°	60%
	81 to 90°	29%	71 to 80°	4%
	91 to 100°	47%		
	101 to 110°	5%		
September	51 to 60°	2%	31 to 40°	#
	61 to 70°	29%	41 to 50°	14%
	71 to 80°	34%	51 to 60°	62%
	81 to 90°	30%	61 to 70°	24%
	91 to 100°	5%	71 to 80°	#
October	41 to 50°	5%	31 to 40°	8%
	51 to 60°	41%	41 to 50°	66%
	61 to 70°	41%	51 to 60°	26%
	71 to 80°	12%	61 to 70°	#
November	31 to 40°	2%	21 to 30°	#
	41 to 50°	50%	31 to 40°	43%
	51 to 60°	46%	41 to 50°	54%
	61 to 70°	2%	51 to 60°	3%
December	21 to 30°	5%	21 to 30°	7%
	31 to 40°	24%	31 to 40°	69%
	41 to 50°	67%	41 to 50°	24%
	51 to 60°	4%		

# Less than one percent

North Willamette Experiment Station, Aurora, Oregon

2-Inch Soil Temperature

Weekly Average

Week begins	Max	Min	Week begins	Max	Min
January 1	39	34	July 2	87	61
January 8	40	36	July 9	88	63
January 15	44	38	July 16	92	64
January 22	43	36	July 23	93	63
January 29	44	36	July 30	91	64
February 5	47	36	August 6	93	64
February 12	48	40	August 13	89	63
February 19	52	38	August 20	85	62
February 26	51	38	August 27	84	61
March 5	53	39	September 3	83	60
March 12	54	40	September 10	78	58
March 19	57	39	September 17	72	56
March 26	58	41	September 24	73	55
April 2	61	43	October 1	69	50
April 9	61	43	October 8	64	49
April 16	60	43	October 15	61	46
April 23	65	45	October 22	58	46
April 30	69	47	October 29	55	45
May 7	73	49	November 5	53	43
May 14	76	52	November 12	50	42
May 21	77	54	November 19	49	40
May 28	78	55	November 26	46	39
June 4	78	57	December 3	44	41
June 11	81	58	December 10	41	38
June 18	83	60	December 17	42	37
June 25	82	58	December 24	43	38

Average 4-Inch Soil Temperature  
Pitchford Boys Ranch, Roseburg, Oregon  
5 Year Average

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	44	40	45	41	50	45	58	47	65	51	75	62	84	67	88	73	79	64	72	58	56	51	48	45
2	43	39	45	42	50	43	59	48	66	49	77	64	84	67	86	71	82	66	70	58	55	50	47	44
3	43	39	44	42	49	46	59	46	68	54	79	66	85	68	88	69	83	67	69	56	55	50	47	44
4	40	38	46	42	51	44	61	50	68	52	80	66	85	69	87	72	83	67	68	58	55	49	46	43
5	40	36	47	44	51	44	61	50	67	55	81	66	87	69	87	70	81	66	69	58	54	47	46	42
6	39	37	47	43	53	45	62	50	71	55	82	66	86	67	87	71	81	66	70	58	53	47	46	42
7	40	38	49	42	53	44	58	50	73	56	79	67	85	69	85	70	81	64	68	57	52	48	46	43
8	40	37	49	44	53	46	62	50	73	57	79	65	86	69	85	70	81	65	68	58	53	48	45	43
9	41	37	49	46	53	47	60	52	66	56	77	66	87	67	87	72	82	64	68	56	51	46	45	43
10	42	40	51	46	51	47	59	49	67	56	74	63	85	68	86	71	80	67	66	56	53	49	45	43
11	43	43	50	45	52	46	61	51	70	56	76	65	85	69	84	70	79	65	66	57	53	50	44	41
12	45	43	51	45	53	47	61	50	73	61	76	64	85	69	85	68	79	63	63	55	53	50	43	42
13	47	43	50	45	53	48	58	51	72	57	78	62	86	69	85	67	80	63	63	53	53	50	45	43
14	46	42	49	45	52	48	58	50	74	57	78	62	88	70	85	69	78	63	63	53	52	49	45	43
15	45	43	49	45	54	47	62	50	80	59	79	64	89	72	86	69	79	63	61	53	52	48	45	42
16	48	43	49	45	53	48	62	51	80	59	80	65	89	71	86	68	79	63	61	51	51	49	45	42
17	51	43	51	46	54	47	61	50	77	64	81	65	90	71	84	69	77	65	62	51	51	48	44	44
18	50	46	51	45	55	46	61	48	78	62	83	65	90	74	84	69	76	64	62	53	50	46	45	43
19	47	44	51	45	57	46	59	48	75	59	82	66	89	72	87	69	73	62	62	53	50	46	47	44
20	47	43	51	42	53	47	61	50	74	61	85	67	88	72	87	71	74	60	61	52	50	47	47	44
21	46	44	51	42	56	48	62	50	75	60	84	69	86	72	87	71	76	62	59	50	49	45	46	44
22	46	43	51	42	56	49	62	50	77	60	81	69	89	72	87	69	73	62	59	52	48	45	46	44
23	45	40	50	45	55	48	61	52	76	61	83	69	89	71	84	68	73	61	58	52	49	46	45	42
24	45	44	51	45	57	49	60	52	77	60	81	65	88	72	81	67	72	60	58	52	50	46	45	42
25	45	42	51	47	55	47	61	51	77	60	82	69	89	72	82	66	70	60	57	50	50	46	44	41
26	44	42	51	44	54	47	62	54	77	60	82	68	89	72	84	66	71	59	57	51	49	45	44	41
27	45	42	51	45	54	46	64	52	80	60	84	68	90	72	80	66	73	58	57	50	49	45	44	41
28	45	42	48	45	55	49	64	52	77	60	83	69	88	72	82	67	71	57	56	50	48	46	46	43
29	46	42	48	45	54	46	61	50	77	62	84	67	88	73	83	67	69	59	57	48	49	47	47	43
30	46	41	46	41	56	46	63	51	76	63	83	66	87	71	83	67	70	59	56	47	49	47	44	40
31	44	41	46	41	56	47	63	51	75	61	88	69	88	69	81	66	88	69	55	50	50	47	44	41

Weather Service for Agriculture  
Oregon State University  
Agriculture Hall 327

Pitchford Boys Ranch  
Frequency of Occurrence  
4-Inch Soil Temperature

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
January	31 to 40°	18%	31 to 40°	47%
	41 to 50°	76%	41 to 50°	53%
	51 to 60°	67%	51 to 60°	#
	61 to 70°	#		
February	31 to 40°	4%	31 to 40°	13%
	41 to 50°	65%	41 to 50°	86%
	51 to 60°	31%	51 to 60°	1%
March	41 to 50°	30%	31 to 40°	8%
	51 to 60°	65%	41 to 50°	78%
	61 to 70°	5%	51 to 60°	14%
April	41 to 50°	1%	31 to 40°	2%
	51 to 60°	51%	41 to 50°	54%
	61 to 70°	47%	51 to 60°	44%
	71 to 80°	1%		
May	51 to 60°	3%	41 to 50°	5%
	61 to 70°	39%	51 to 60°	64%
	71 to 80°	44%	61 to 70°	31%
	81 to 90°	12%		
	91 to 100°	2%		
June	61 to 70°	9%	51 to 60°	10%
	71 to 80°	44%	61 to 70°	79%
	81 to 90°	39%	71 to 80°	11%
	91 to 100°	2%		
July	61 to 70°	#	51 to 60°	#
	71 to 80°	10%	61 to 70°	51%
	81 to 90°	62%	71 to 80°	48%
	91 to 100°	28%	81 to 90°	1%

# Less than one percent

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
August	61 to 70°	1%	51 to 60°	2%
	71 to 80°	30%	61 to 70°	63%
	81 to 90°	48%	71 to 80°	35%
	91 to 100°	19%		
	101 to 110°	2%		
September	51 to 60°	1%	51 to 60°	26%
	61 to 70°	17%	61 to 70°	72%
	71 to 80°	52%	71 to 80°	2%
	81 to 90°	25%		
	91 to 100°	5%		
October	41 to 50°	2%	41 to 50°	26%
	51 to 60°	39%	51 to 60°	65%
	61 to 70°	47%	61 to 70°	9%
	71 to 80°	12%		
November	41 to 50°	43%	31 to 40°	2%
	51 to 60°	56%	41 to 50°	79%
	61 to 70°	1%	51 to 60°	18%
			61 to 70°	1%
December	31 to 40°	13%	31 to 40°	23%
	41 to 50°	83%	41 to 50°	77%
	51 to 60°	4%		

# Less than one percent



## Pitchford Boys Ranch, Roseburg, Oregon

## 4-Inch Soil Temperature

## Weekly Average

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Week begins		Max	Min	Week begins		Max	Min
January	1	41	38	July	2	85	68
January	8	44	41	July	9	86	69
January	15	48	44	July	16	89	72
January	22	45	42	July	23	89	72
January	29	45	42	July	30	87	71
February	5	49	44	August	6	86	70
February	12	50	45	August	13	85	69
February	19	51	44	August	20	85	73
February	26	50	45	August	27	81	66
March	5	52	45	September	3	82	66
March	12	53	47	September	10	79	64
March	19	56	48	September	17	75	62
March	26	55	47	September	24	71	59
April	2	60	49	October	1	69	58
April	9	60	50	October	8	65	55
April	16	61	50	October	15	61	52
April	23	62	52	October	22	57	51
April	30	67	52	October	29	56	49
May	7	71	57	November	5	53	48
May	14	77	60	November	12	52	49
May	21	77	60	November	19	49	46
May	28	77	63	November	26	48	46
June	4	79	66	December	3	46	43
June	11	78	64	December	10	45	42
June	18	83	67	December	17	46	44
June	25	83	68	December	24	44	41

Average 4-Inch Soil Temperature  
Medford, Oregon  
9 Year Average

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	40	39	43	40	48	44	55	48	62	53	70	63	78	70	84	76	75	70	69	62	55	50	46	44
2	40	39	42	40	47	43	56	49	63	55	71	63	78	70	84	75	79	70	68	61	55	51	46	43
3	40	39	42	40	48	43	57	49	63	56	72	64	79	71	83	74	78	69	69	59	56	50	45	43
4	40	39	43	40	47	44	58	50	65	58	74	65	80	71	83	74	79	69	68	60	55	50	45	43
5	40	39	44	41	49	44	57	51	64	57	75	66	80	72	82	73	79	69	68	61	54	50	44	42
6	40	39	44	42	50	45	58	51	65	57	75	68	80	71	82	73	78	69	68	60	53	49	44	42
7	40	38	45	41	51	45	56	50	66	56	74	67	80	71	82	73	78	69	67	60	53	48	44	43
8	40	38	45	40	51	45	58	51	68	59	73	67	79	72	82	73	78	68	67	60	53	49	45	43
9	42	39	46	42	51	46	56	51	68	60	73	67	79	72	82	74	78	68	66	59	53	49	45	43
10	41	38	46	42	50	46	57	51	67	59	71	65	80	71	83	75	78	68	66	59	53	50	45	43
11	41	38	46	42	51	46	57	50	66	58	71	65	79	72	84	75	77	69	65	59	53	50	44	42
12	43	40	46	42	51	46	57	51	67	59	72	64	79	72	83	74	77	68	64	58	53	50	44	42
13	44	42	45	42	51	46	56	52	67	60	73	65	79	72	82	74	76	68	64	57	53	50	43	42
14	45	43	45	42	52	47	55	51	68	59	74	66	79	72	83	74	75	67	63	57	52	49	44	42
15	44	42	46	42	53	47	59	52	69	60	74	67	82	74	82	73	76	66	62	57	51	47	44	41
16	43	41	46	42	53	48	59	52	69	61	75	67	82	74	82	73	76	67	62	55	50	46	42	40
17	42	40	48	42	53	48	57	52	68	60	74	67	83	74	82	73	75	67	61	54	50	47	42	40
18	42	40	49	44	53	47	56	51	68	60	75	67	83	74	81	73	73	67	61	54	49	47	41	40
19	42	40	48	43	52	46	57	51	67	60	75	68	81	74	81	72	71	65	60	54	49	46	42	40
20	43	40	48	43	53	46	58	51	70	60	77	69	81	73	81	72	71	64	60	55	48	46	42	39
21	44	42	49	43	53	47	58	52	67	60	77	69	82	74	82	72	72	64	60	54	48	46	42	41
22	44	41	49	44	53	48	58	52	68	61	77	69	82	74	80	72	72	64	59	54	48	45	43	40
23	43	39	49	44	53	48	58	53	70	61	76	69	80	73	79	72	73	64	59	54	49	45	43	41
24	44	41	49	44	54	48	59	52	71	62	76	69	82	73	79	70	72	64	59	53	47	45	44	42
25	42	40	49	44	52	47	58	53	71	62	76	69	82	73	78	70	72	64	58	52	48	45	44	42
26	42	41	49	44	54	48	59	53	70	62	75	68	83	74	79	71	72	62	57	52	46	44	43	41
27	41	40	50	45	55	48	59	53	70	62	75	67	84	75	80	71	70	62	57	52	47	44	42	40
28	41	40	49	46	54	48	58	54	71	63	75	67	84	76	79	71	71	62	57	51	46	44	42	41
29	43	40	49	46	55	48	58	53	72	64	77	68	85	76	80	70	70	62	57	52	47	44	42	40
30	43	40	49	46	55	49	60	53	70	64	77	69	84	76	79	70	70	62	56	50	47	44	42	40
31	41	39			55	50			68	63			84	76	80	70			54	50				42

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Medford, Oregon  
Frequency of Occurrence  
4-Inch Soil Temperature

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	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
January	31 to 40°	45%	31 to 40°	65%
	41 to 50°	52%	41 to 50°	34%
	51 to 60°	3%	51 to 60°	1%
February	31 to 40°	8%	31 to 40°	31%
	41 to 50°	79%	41 to 50°	66%
	51 to 60°	13%	51 to 60°	3%
March	41 to 50°	41%	31 to 40°	5%
	51 to 60°	56%	41 to 50°	82%
	61 to 70°	3%	51 to 60°	13%
April	41 to 50°	5%	41 to 50°	42%
	51 to 60°	72%	51 to 60°	58%
	61 to 70°	23%		
	71 to 80°	#		
May	51 to 60°	15%	41 to 50°	2%
	61 to 70°	53%	51 to 60°	56%
	71 to 80°	29%	61 to 70°	41%
	81 to 90°	3%	71 to 80°	1%
June	61 to 70°	36%	51 to 60°	20%
	71 to 80°	44%	61 to 70°	58%
	81 to 90°	20%	71 to 80°	22%
July	61 to 70°	4%	51 to 60°	#
	71 to 80°	46%	61 to 70°	35%
	81 to 90°	36%	71 to 80°	58%
	91 to 100°	14%	81 to 90°	7%

# Less than one percent

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
August	61 to 70°	2%	51 to 60°	#
	71 to 80°	50%	61 to 70°	38%
	81 to 90°	35%	71 to 80°	57%
	91 to 100°	13%	81 to 90°	5%
September	51 to 60°	#	51 to 60°	11%
	61 to 70°	34%	61 to 70°	69%
	71 to 80°	40%	71 to 80°	20%
	81 to 90°	26%		
October	41 to 50°	1%	31 to 40°	#
	51 to 60°	40%	41 to 50°	12%
	61 to 70°	49%	51 to 60°	72%
	71 to 80°	10%	61 to 70°	16%
November	31 to 40°	1%	31 to 40°	10%
	41 to 50°	48%	41 to 50°	65%
	51 to 60°	51%	51 to 60°	25%
December	31 to 40°	27%	31 to 40°	47%
	41 to 50°	69%	41 to 50°	52%
	51 to 60°	4%	51 to 60°	1%

# Less than one percent

Medford, Oregon  
4-Inch Soil Temperature  
Weekly Average

Week begins		Max	Min
January	1	40	39
January	8	42	40
January	15	43	40
January	22	42	40
January	29	42	40
February	5	45	41
February	12	46	42
February	19	49	44
February	26	49	44
March	5	50	45
March	12	52	47
March	19	53	47
March	26	54	48
April	2	57	50
April	9	57	51
April	16	58	52
April	23	58	53
April	30	63	56
May	7	67	59
May	14	68	60
May	21	70	61
May	28	71	63
June	4	74	67
June	11	73	66
June	18	76	69
June	25	76	68

Week begins		Max	Min
July	2	79	71
July	9	80	72
July	16	82	74
July	23	83	74
July	30	83	77
August	6	83	74
August	13	82	73
August	20	80	71
August	27	79	70
September	3	78	69
September	10	76	68
September	17	72	65
September	24	71	63
October	1	68	60
October	8	65	58
October	15	61	55
October	22	58	53
October	29	55	51
November	5	53	49
November	12	51	48
November	19	48	45
November	26	46	44
December	3	44	43
December	10	44	42
December	17	42	40
December	24	43	41

Average 4-Inch Soil Temperature  
 Central Oregon Experiment Station, Redmond, Oregon  
 4 Year Average

Date	Apr		May		Jun		Jul		Aug		Sep	
	max	min	max	min	max	min	max	min	max	min	max	min
1	47	35	59	42	71	52	76	55	84	63	68	58
2	47	36	61	43	73	53	79	57	83	62	69	56
3	53	38	61	46	73	55	79	58	82	62	69	56
4	51	39	63	47	76	56	81	60	80	62	69	55
5	53	41	62	47	74	55	80	60	82	62	69	50
6	52	40	62	47	77	55	80	58	81	62	68	56
7	52	39	61	47	73	56	81	61	79	62	71	56
8	52	40	58	48	67	55	81	60	80	61	71	52
9	51	40	57	46	71	54	76	65	82	62	73	52
10	50	39	60	45	70	54	79	59	83	63	72	53
11	51	39	61	45	74	54	79	59	82	63	73	47
12	49	39	61	45	74	54	79	58	83	63	73	49
13	50	39	63	46	71	56	79	58	83	61	68	50
14	51	43	66	48	70	55	80	60	83	60	65	47
15	54	40	68	49	75	56	81	61	82	61	65	47
16	53	41	66	48	73	55	83	62	80	59	67	47
17	52	39	62	49	75	55	85	64	76	58	68	45
18	50	38	62	47	74	55	87	64	76	57	69	50
19	50	38	65	48	75	56	86	65	77	58	65	51
20	51	38	62	47	79	57	84	64	76	60	68	52
21	50	38	65	48	79	58	81	61	77	60	59	48
22	55	40	65	48	79	60	75	59	78	60	67	49
23	55	40	66	49	81	59	78	59	81	59	67	49
24	51	40	68	50	76	58	79	61	81	60	66	46
25	51	39	68	50	72	57	80	62	81	60	62	48
26	52	40	70	51	72	56	84	63	83	60	59	45
27	56	41	69	50	75	56	83	63	83	62	58	45
28	55	42	73	49	78	57	80	62	81	62	67	47
29	57	41	71	48	77	56	77	62	82	60	67	47
30	56	42	71	53	75	56	79	62	80	61	59	47
31			72	53			81	63	73	58		

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Central Oregon Experimental Station  
Frequency of Occurrence  
4-Inch Soil Temperature

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	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
April	41 to 50°	30%	31 to 40°	54%
	51 to 60°	63%	41 to 50°	46%
	61 to 70°	7%		
May	41 to 50°	2%	31 to 40°	1%
	51 to 60°	19%	41 to 50°	58%
	61 to 70°	45%	51 to 60°	41%
	71 to 80°	31%		
	81 to 90°	3%		
June	51 to 60°	3%	41 to 50°	5%
	61 to 70°	22%	51 to 60°	79%
	71 to 80°	52%	61 to 70°	16%
	81 to 90°	23%		
July	61 to 70°	4%	41 to 50°	2%
	71 to 80°	46%	51 to 60°	46%
	81 to 90°	47%	61 to 70°	52%
	91 to 100°	3%		
August	61 to 70°	2%	51 to 60°	47%
	71 to 80°	47%	61 to 70°	53%
	81 to 90°	51%		
September	41 to 50°	2%	41 to 50°	55%
	51 to 60°	14%	51 to 60°	41%
	61 to 70°	54%	61 to 70°	4%
	71 to 80°	30%		

# Less than one percent

Central Oregon Experiment Station, Redmond, Oregon

4-Inch Soil Temperature

Weekly Average

Week Begins		Max	Min
April	1	51	38
April	8	51	40
April	15	51	39
April	22	54	40
April	29	60	44
May	6	60	46
May	13	65	48
May	20	66	49
May	27	71	51
June	3	73	55
Jun	10	72	55
June	17	77	57
June	24	75	57
July	1	79	58
July	8	79	60
July	15	82	63
July	22	80	61
July	29	81	62
August	5	81	62
August	12	80	60
August	19	79	59
August	26	79	60
September	2	69	54
September	9	70	49
September	16	66	49
September	23	63	47



Average 4-Inch Soil Temperature

Madras, Oregon

10 Year Average

Date	Apr		May		Jun		Jul		Aug		Sep		Oct	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	55	47	60	51	70	62	78	68	84	74	76	65	67	58
2	54	45	61	51	71	63	79	69	83	74	75	64	65	57
3	54	45	62	54	73	63	79	67	83	74	77	65	65	56
4	55	48	63	55	74	64	82	71	83	73	76	65	65	56
5	55	49	63	55	75	66	82	72	82	72	75	66	64	56
6	55	47	62	54	75	67	81	72	84	74	76	65	63	56
7	55	46	64	55	74	66	82	72	84	74	75	63	64	55
8	55	47	64	56	73	65	81	72	84	74	74	62	63	55
9	56	49	65	56	73	65	81	72	84	74	74	63	62	55
10	56	49	65	57	72	64	81	72	84	75	75	62	62	54
11	56	49	66	56	72	63	80	72	84	74	75	64	62	55
12	56	47	66	59	72	62	81	72	83	73	74	61	61	53
13	55	47	67	59	72	64	81	71	83	72	73	61	60	53
14	56	49	67	58	73	64	81	72	83	72	70	61	57	51
15	58	50	68	59	73	64	81	72	82	72	70	60	58	51
16	56	49	69	59	74	65	82	72	82	72	71	61	57	49
17	55	47	68	59	75	65	83	73	80	71	70	61	57	49
18	55	47	70	60	76	66	83	74	80	71	69	60	56	49
19	55	48	70	61	78	66	83	74	80	70	68	58	56	50
20	55	48	69	60	79	68	82	73	80	70	66	58	56	50
21	56	48	68	60	79	70	81	72	80	70	68	58	56	50
22	58	49	68	59	79	69	82	71	80	71	68	59	56	50
23	57	51	69	60	77	68	83	72	80	71	69	59	56	50
24	56	49	70	61	77	67	84	73	81	71	69	59	56	48
25	57	50	70	60	76	68	83	73	79	69	69	58	55	48
26	59	50	70	61	77	68	83	73	78	69	68	58	54	48
27	59	51	70	61	77	68	84	73	78	69	68	57	53	47
28	59	52	71	62	76	67	85	75	78	68	69	57	51	46
29	60	51	72	62	77	67	84	75	78	68	67	59	50	45
30	59	52	71	62	77	67	84	74	78	68	67	58	52	46
31			70	62			84	75	77	67			52	46

Weather Service for Agriculture  
Oregon State University  
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Madras, Oregon  
Frequency of Occurrence  
4-Inch Soil Temperature

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	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
April	41 to 50°	7%	31 to 40°	#
	51 to 60°	76%	41 to 50°	72%
	61 to 70°	16%	51 to 60°	28%
	71 to 80°	1%		
May	51 to 60°	12%	41 to 50°	7%
	61 to 70°	63%	51 to 60°	57%
	71 to 80°	25%	61 to 70°	36%
June	51 to 60°	1%	51 to 60	17%
	61 to 70°	18%	61 to 70°	66%
	71 to 80°	65%	71 to 80°	17%
	81 to 90°	16%		
July	61 to 70°	1%	51 to 60°	#
	71 to 80°	30%	61 to 70°	29%
	81 to 90°	69%	71 to 80°	71%
	91 to 100°	1%		
August	61 to 70°	3%	51 to 60°	1%
	71 to 80°	35%	61 to 70°	36%
	81 to 90°	59%	71 to 80°	63%
	91 to 100°	3%		
September	51 to 60°	2%	41 to 50°	5%
	61 to 70°	42%	51 to 60°	42%
	71 to 80°	52%	61 to 70°	46%
	81 to 90°	4%	71 to 80°	7%
October	41 to 50°	8%	31 to 40°	3%
	51 to 60°	59%	41 to 50	42%
	61 to 70°	31%	51 to 60°	51%
	71 to 80°	2%	61 to 70°	4%

# Less than one percent

Madras, Oregon  
4-Inch Soil Temperature  
Weekly Average

Week begins		Max	Min
April	1	55	47
April	8	56	48
April	15	56	48
April	22	58	50
April	29	61	53
May	6	65	56
May	13	68	59
May	20	69	60
May	27	71	62
June	3	74	65
June	10	73	64
June	17	78	67
June	24	77	67
July	1	80	70
July	8	81	72
July	15	82	73
July	22	83	73
July	29	84	74

Week begins		Max	Min
August	5	84	74
August	12	82	72
August	19	80	70
August	26	78	67
September	2	75	64
September	9	73	62
September	16	69	59
September	23	68	58
September	30	65	57
October	7	62	54
October	14	57	50
October	21	55	49
October	28	51	46

Average 4-Inch Soil Temperature

Moro, Oregon

3 Year Average

Date	Apr		May		Jun		Jul		Aug		Sep		Oct	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	60	47	61	47	73	57	84	64	87	69	77	57	70	53
2	54	41	60	46	71	55	78	61	84	68	77	60	69	54
3	58	42	65	47	75	57	76	60	84	68	72	57	69	51
4	59	41	67	50	75	59	79	62	80	67	75	57	69	52
5	62	42	64	49	75	59	85	62	79	64	76	57	66	50
6	61	43	65	50	77	59	85	65	85	62	81	61	71	51
7	64	46	66	48	73	60	88	66	88	65	79	60	70	53
8	64	50	70	50	75	59	88	66	91	71	77	58	71	54
9	60	47	69	52	74	59	84	64	86	69	78	60	67	50
10	57	46	70	53	78	61	85	65	87	68	76	61	64	48
11	59	45	68	53	75	60	82	65	86	67	74	56	68	48
12	60	43	74	53	72	57	86	66	85	65	73	55	64	48
13	57	42	70	54	76	55	84	66	78	63	77	54	60	48
14	62	43	64	50	79	59	88	68	83	60	71	57	64	47
15	62	48	65	51	76	61	83	67	88	63	70	55	59	46
16	66	50	62	53	72	58	84	66	86	68	69	51	55	42
17	66	47	63	50	75	60	86	65	85	65	72	51	59	42
18	63	43	72	51	67	56	87	66	86	67	70	52	59	42
19	56	46	73	53	73	60	84	66	86	67	70	49	58	42
20	63	46	73	54	76	57	83	65	73	60	72	52	58	43
21	60	48	71	54	77	58	81	64	79	60	73	53	58	41
22	63	48	68	52	76	58	81	64	84	61	71	52	57	41
23	65	49	66	50	84	59	85	64	84	66	78	58	58	43
24	70	49	69	50	80	63	85	63	82	66	75	57	62	45
25	60	50	73	53	78	60	87	64	83	65	74	56	63	45
26	64	48	78	59	81	62	89	65	77	62	74	59	64	45
27	66	50	77	56	76	60	89	67	78	61	68	54	60	45
28	73	57	80	59	79	59	92	68	74	59	69	53	54	43
29	65	51	76	60	80	61	88	72	75	58	73	55	57	43
30	68	51	71	58	79	62	90	71	74	57	70	54	53	43
31			73	57			85	68	77	55			53	43

Weather Service for Agriculture  
Oregon State University  
Agriculture Hall 327

Moro, Oregon  
Frequency of Occurrence  
4-Inch Soil Temperature

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
April	41 to 50°	5%	31 to 40°	10%
	51 to 60°	36%	41 to 50°	78%
	61 to 70°	47%	51 to 60°	10%
	71 to 80°	12%	61 to 70°	2%
May	51 to 60°	16%	41 to 50°	37%
	61 to 70°	36%	51 to 60°	55%
	71 to 80°	43%	61 to 70°	8%
	81 to 90°	5%		
June	51 to 60°	2%	41 to 50°	2%
	61 to 70°	22%	51 to 60°	58%
	71 to 80°	40%	61 to 70°	39%
	81 to 90°	36%	71 to 80°	1%
July	51 to 60°	1%	51 to 60°	9%
	61 to 70°	2%	61 to 70°	74%
	71 to 80°	20%	71 to 80°	17%
	81 to 90°	57%		
	91 to 100°	20%		
August	61 to 70°	5%	51 to 60°	33%
	71 to 80°	35%	61 to 70°	52%
	81 to 90°	45%	71 to 80°	15%
	91 to 100°	15%		
September	51 to 60°	1%	41 to 50°	12%
	61 to 70°	38%	51 to 60°	77%
	71 to 80°	53%	61 to 70°	11%
	81 to 90°	7%		
	91 to 100°	1%		
October	41 to 50°	3%	31 to 40°	9%
	51 to 60°	36%	41 to 50°	69%
	61 to 70°	44%	51 to 60°	22%
	71 to 80°	17%		

# Less than one percent

Moro, Oregon  
 4-Inch Soil Temperature  
 Weekly Average

Week begins	Max	Min	Week begins	Max	Min		
April	1	60	43	August	5	86	67
April	8	60	45	August	12	84	64
April	15	62	47	August	19	81	64
April	22	66	50	August	26	76	58
April	29	64	50	September	2	77	59
May	6	69	51	September	9	74	57
May	13	67	52	September	16	71	51
May	20	71	53	September	23	73	56
May	27	74	57	September	30	69	52
June	3	75	59	October	7	68	50
June	10	75	59	October	14	59	44
June	17	75	57	October	21	60	44
June	24	75	61	October	28	54	43
July	1	82	63				
July	8	85	66				
July	15	84	66				
July	22	87	65				
July	29	85	69				

Average 4-Inch Soil Temperature

Klamath Falls, Oregon

9 Year Average

Date	Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1	36	34	47	38	57	43	66	54	77	60	78	64	75	60	64	50	47	39
2	36	34	48	38	58	44	66	54	79	61	78	64	74	60	64	50	47	38
3	34	33	48	38	59	45	68	54	78	63	79	64	74	59	62	48	47	39
4	33	33	50	38	58	47	70	55	80	64	79	63	74	59	62	48	46	40
5	36	33	50	39	58	46	72	57	81	65	78	63	73	59	61	48	46	39
6	37	33	49	39	57	45	71	57	80	64	78	63	73	58	61	48	44	38
7	38	34	50	39	59	45	70	57	80	65	79	63	72	57	60	47	43	38
8	41	34	50	39	60	47	70	57	80	64	78	64	72	57	62	48	43	39
9	40	34	51	39	60	48	68	55	79	64	77	63	73	58	60	50	44	39
10	37	34	50	40	60	46	69	55	78	63	76	63	73	58	59	47	44	39
11	38	33	50	40	61	48	68	54	78	62	78	64	73	58	59	47	44	39
12	36	34	49	39	61	48	70	54	78	63	77	63	70	57	57	47	44	39
13	36	32	49	38	63	49	69	55	78	63	77	62	71	56	57	46	44	39
14	36	32	48	38	62	49	69	56	79	63	76	62	69	56	56	51	42	39
15	40	34	50	39	63	49	71	56	79	64	76	61	69	56	54	44	42	37
16	41	34	52	40	65	50	73	56	80	65	77	62	70	55	52	43	41	37
17	41	35	50	40	66	50	72	58	79	65	76	62	70	55	53	42	41	37
18	41	35	48	38	66	51	73	58	79	65	77	62	68	55	53	43	39	36
19	41	35	48	38	67	52	75	58	79	64	76	62	66	54	54	43	39	36
20	42	33	50	38	65	52	75	60	78	64	75	61	64	51	53	43	40	36
21	42	35	50	38	65	51	76	61	77	63	74	61	64	51	53	43	39	35
22	44	35	51	39	64	51	74	60	77	62	75	61	66	51	51	43	39	35
23	43	36	52	40	66	51	72	60	77	63	75	60	66	51	51	43	38	35
24	45	36	50	40	67	52	71	58	77	63	75	60	65	52	52	42	37	35
25	47	37	52	40	68	53	73	58	78	63	73	60	65	52	51	41	37	35
26	45	36	52	40	68	53	70	58	77	63	72	60	65	52	51	40	37	34
27	46	36	54	41	68	53	74	59	78	63	74	59	65	52	50	41	36	34
28	48	37	55	41	70	54	75	59	79	64	74	59	65	51	49	40	35	33
29	48	38	55	42	71	56	76	59	79	64	75	60	64	41	47	39	35	33
30	46	38	55	43	71	56	77	60	78	64	75	60	64	51	46	38	36	34
31	46	38			68	54			78	64	73	60			46			

Weather Service for Agriculture  
Oregon State University  
Agriculture Hall 327

Klamath Falls, Oregon  
Frequency of Occurrence  
4-Inch Soil Temperature

	Maximum		Minimum	
	Category	Occurrence	Category	Occurrence
March	21 to 30°	4%	21 to 30°	7%
	31 to 40°	36%	31 to 40°	92%
	41 to 50°	54%	41 to 50°	1%
	51 to 60°	6%		
April	31 to 40°	4%	31 to 40°	72%
	41 to 50°	51%	41 to 50°	27%
	51 to 60°	34%	51 to 60°	1%
	61 to 70°	11%		
May	41 to 50°	6%	31 to 40°	5%
	51 to 60°	28%	41 to 50°	47%
	61 to 70°	47%	51 to 60°	46%
	71 to 80°	19%	61 to 70°	2%
June	41 to 50°	#	41 to 50°	11%
	51 to 60°	7%	51 to 60°	61%
	61 to 70°	34%	61 to 70°	28%
	71 to 80°	55%		
	81 to 90°	4%		
July	61 to 70°	7%	51 to 60°	27%
	71 to 80°	52%	61 to 70°	69%
	81 to 90°	41%	71 to 80°	4%
August	51 to 60°	2%	41 to 50°	1%
	61 to 70°	13%	51 to 60°	35%
	71 to 80°	62%	61 to 70°	60%
	81 to 90°	23%	71 to 80°	4%
September	41 to 50°	#	31 to 40°	#
	51 to 60°	10%	41 to 50°	17%
	61 to 70°	43%	51 to 60°	68%
	71 to 80°	47%	61 to 70°	15%
October	21 to 30°	#	21 to 30°	1%
	31 to 40°	3%	31 to 40°	25%
	41 to 50°	25%	41 to 50°	60%
	51 to 60°	47%	51 to 60°	14%
	61 to 70°	25%	61 to 70°	#
	71 to 80°	#		
November	21 to 30°	#	21 to 30°	#
	31 to 40°	48%	31 to 40°	78%
	41 to 50°	46%	41 to 50°	22%
	51 to 60°	6%		

# Less than one percent



Klamath Falls, Oregon  
4-Inch Soil Temperature  
Weekly Average

Week begins	Max	Min	Week begins	Max	Min		
March	1	36	33	July	5	79	64
March	8	38	33	July	12	79	64
March	15	41	34	July	19	78	63
March	22	45	36	July	26	78	64
March	29	48	38	August	2	78	63
April	5	50	39	August	9	77	63
April	12	49	39	August	16	77	62
April	19	50	39	August	23	74	60
April	26	55	42	August	30	74	60
May	3	59	46	September	6	73	58
May	10	62	48	September	13	69	55
May	17	66	51	September	20	65	51
May	24	69	54	September	27	64	50
May	31	69	55	October	4	61	48
June	7	69	55	October	11	55	46
June	14	73	57	October	18	52	43
June	21	73	59	October	25	49	40
June	28	78	61	November	1	47	39
				November	8	44	39
				November	15	40	36
				November	22	37	34

Average Monthly 4-Inch Soil Temperature  
Pendleton Experiment Station, Pendleton, Oregon  
11 Year Average

Date	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min
1974	37	35	42	37	47	40	55	46	68	55	83	66	85	68	85	68	78	61	61	49	45	41	39	36
1973	35	33	39	36	50	41	60	46	73	57	79	64	85	72	85	69	70	58	58	40	41	39	40	38
1972	36	34	38	35	49	41	55	44	72	56	79	53	85	67	86	69	70	55	57	46	44	39	36	35
1971	40	38	44	40	45	40	56	48	70	59	73	63	86	72	89	74	69	45	56	46	42	38	36	34
1970	38	37	44	40	47	41	55	46	72	58	81	67	90	75	90	74	70	58	57	49	46	42	38	37
1969	37	37	39	38	48	42	59	50	71	58	84	66	88	72	87	72	77	64	56	47	47	42	39	37
1968	40	39	44	42	54	46	60	50	73	68	83	68	91	77	82	71	74	63	57	50	45	43	41	39
1967	43	41	44	41	49	44	57	48	70	48	83	70	92	78	93	79	82	69	60	52	46	43	39	37
1966	39	38	42	40	49	43	64	52	74	61	80	66	88	73	89	75	79	67	61	52	48	44	43	41
1965	38	37	45	40	50	40	64	52	73	60	84	69	89	74	86	73	71	61	63	54	50	45	39	38
1964	37	35	39	35	43	37	57	44	70	55	80	65	87	73	84	70	74	61	60	51	45	42	41	39
Mean	38	37	42	39	48	41	58	48	72	58	81	65	88	73	87	72	74	60	59	49	45	42	39	37