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ILLINOIS TEMPERATURE IN TERMS OF ECONOMIC PLANT REQUIREMENTS

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Plants are more sensitive to climate than are animals because plants cannot seek shelter. Plantsmen have studied and classified many crop plants according to the climate required for their best growth. So far as temperature is concerned, plants fall into two general groups, cool-season crops and warm-season crops. Cool-season crops need at least 40°F. temperature for growth and often are adversely affected if the average daily temperature goes above 70°F. for many days. These plants are not seriously hurt by frost but are often injured at temperatures below 28°F. Warm-season crops need at least 56°F. temperature for much growth, and thrive during the warm weather. A map and study of average Illinois temperatures in terms of economic plant requirement classifications now seems practical.

A plant adaptation picture for various areas of Illinois from records now available,* is given on table 1 and figure 1, which show the periods of cool and warm temperatures and dates of the periods. The towns where the records were taken are shown as the center of the circle illustrating the weather data (fig. 1). Equinoxial days, March 21 and September 21, are located on the same horizontal line as the circle center. The shortest and longest days, December 21 and June 21, are located on the same perpendicular line as the circle center. The shortest day is then automatically at the top and the longest day is at the bottom.

The spring cool season (40°-70°) at any station has longer days than the fall cool season. The length of day in Illinois is greater for the cool-season plants with progression northward because this temperature period is pushed more toward the summer time. Summer days lengthen with progression northward.

If a 28°F. average minimum temperature is classed as winter weather, northwestern Illinois has about 4 months of winter, Peoria 3½ months, St. Louis 2 months, and Cairo none. The northern tier of counties cannot expect over two months (60 days) of average summer temperatures above 70°F., whereas St. Louis expects 109 and Cairo 114 days. Sweet-corn and pea canneries are established businesses in northern Illinois while cotton, peaches, and sweet potatoes are commercial crops of importance around Cairo.

Climate does not seem to affect animals so much as plants. However for some reason, Holstein and Angus cattle seem to predominate in northern Illinois, while Jersey, Guernsey, and Hereford cattle seem to predominate in extreme southern Illinois.

It is hoped that the accompanying table will enable us to make even more efficient use of the weather in Illinois than we do now. The data presented here are averages, and a protective planting margin of a few days is desirable as insurance.

* University of Illinois Agricultural Experiment Station Bulletin 532.

TABLE 1.—SUMMARY OF AVERAGE TEMPERATURES SHOWING COOL SEASON PERIODS AND WARM SEASON PERIODS

	Chicago	Dubuque	Peoria	Urbana	Springfield	St. Louis	Cairo
Spring date average temperature 40°F.	Mar. 27	Mar. 23	Mar. 20	Mar. 16	Mar. 12	Mar. 1	Feb. 19
70°F.	June 22	June 16	June 11	June 10	June 6	May 28	May 25
Number of days between 40°F & 70°F	85	83	81	84	84	88	95
Fall date average temperature....70°F	Aug. 23	Aug. 20	Aug. 29	Aug. 30	Sept. 7	Sept. 17	Sept. 19
40°F.	Nov. 16	Nov. 8	Nov. 14	Nov. 17	Nov. 21	Nov. 28	Dec. 11
Number of days between 70°F & 40°F	83	78	75	77	74	71	82
Days above 40°F.....	229	225	234	241	249	268	292
Days above 70°F.....	61	64	78	80	91	109	114
Spring date average temperature 56°F.	May 10	May 4	May 2	April 30	April 23	April 16	April 8
Fall date average temperature 56°F...	Oct. 9	Oct. 4	Oct. 9	Oct. 11	Oct. 16	Oct. 22	Oct. 26
Number of days above 56°F.....	149	150	157	161	173	186	198
Fall date minimum average 28°F.....	Nov. 30	Nov. 19	Nov. 22	Nov. 27	Dec. 5	Dec. 18	None
Spring date minimum average 28°F...	Mar. 11	Mar. 19	Mar. 8	Mar. 1	Mar. 2	Feb. 19	None
Number of cold days (below 28°F)....	101	120	106	94	87	61	None
Days from spring 56°F to fall 70°F....	103	106	117	126	134	151	161

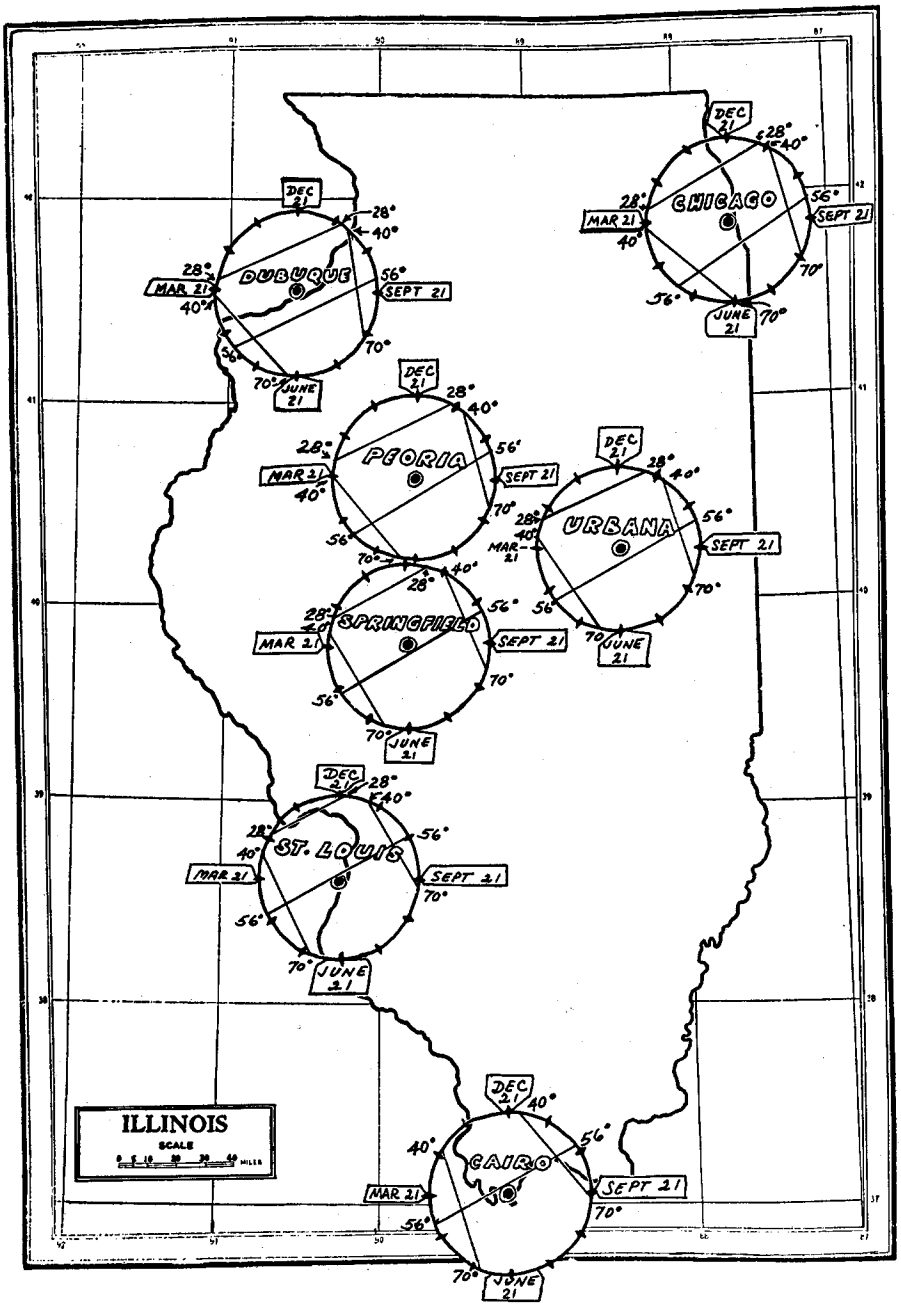

FIG. 1.—Tempograph.