

# SUGAR BEETS IN IOWA, 1891.

*Not Including Those Grown on the Station Grounds.*

G. E. PATRICK, E. N. EATON, D. B. BISBEE.

The proposition made in Bulletin No. 12 for an extensive investigation of the possibilities of sugar beet culture in this state, to be made jointly by the farmers of the state and the chemical section of the station, has resulted in the work whose numerical data are reported in this article.

The results here recorded are almost wholly those obtained in the laboratory. The information furnished by the growers regarding the character of the soil in which the beets were grown and its treatment before planting and during growth of the crop, must be brought into condensed form before it can be of much value to the public, (even if it then be), and as it will take considerable time to do this, that portion of our report is reserved for a future bulletin.

## EXPLANATORY NOTES ON THE SAMPLES, THE MODE OF TESTING, AND THE TABLE OF RESULTS.

### I. THE SAMPLES.

Of the 502 samples—consisting usually of from 2 to 12 beets each—whose analyses are recorded in the following table, 339 were sent in either by business men's associations or by informally associated business men of four cities.

The Ft. Dodge Business Men's Association procured beet seed last spring from the U. S. Dept. of Agr. and distributed it among the farmers of Webster county, offering prizes for the three best lots of beets grown therefrom. The growers were instructed to select twelve beets which would fairly

represent the entire crop grown upon each plat, and deliver the same to Granger & Mitchell, Ft. Dodge, on or before Oct. 25th. This firm forwarded the samples, intact, to the station; there were 24 of them—numbered in the table from 37 to 60 inclusive.

The Commercial Exchange of Des Moines, G. F. Selleck, Secretary, obtained seed in part from the U. S. Dept. of Agr., and in part from foreign seed growers direct, distributed the same in Polk and adjoining counties, and offered prizes on the quality of beets grown. As samples, the growers were instructed to send six beets fairly representing each plat or trial to the secretary, who forwarded the same, intact, to the station. Of these samples there were 95—bearing numbers in the table from 144 to 238 inclusive.

The Davenport Business Men's Association sent only seven samples—numbered in the table from 245 to 251 inclusive. Six of the seven contained only two beets each. The seed was obtained from Oxnard Bros., Grand Island, Neb.

W. H. Hoopes & Sons, together with Mr. Fred Daut (and perhaps other citizens), of Muscatine, imported beet seed from Germany and distributed it among a large number of farmers in their county. The growers were instructed to bring in as samples (to W. H. Hoopes & Sons) beets weighing from 1½ to 2½ pounds. Each grower brought in twelve, of which six were selected and sent to the station for analysis. In all, there were 213 of these samples. They were sent in three distinct lots, harvested at different dates, as follows:

Lots.	Numbered in the table.	Dates of harvesting, (about).
I.....	252 to 305 inclusive.	October 5th
II.....	306 to 367    “	October 15th
III.....	368 to 464    “	October 30th

As the dates of planting would average about the same for the three lots, the results of analysis—shown in concise form in the *means* for the respective lots, in the table—forcibly illustrate the well known effect of *thorough ripening* upon the quality of the beet.

One hundred and sixty-three samples were sent in by private (unassociated) individuals, who were in most cases the growers of the beets.

## 2. PREPARATION OF SAMPLES, AND TESTING.

(a.) *Trimming the Beets*—The Beets were of course received by us with their tops cut off *above* the crown. In this shape the entire sample was weighed. Then the beets were trimmed as for factory purposes—in many cases much more than is commonly needed for factory purposes—by cutting off the crowns and shoulders as far down as they had been exposed above ground, and the *trimmed* sample was then weighed. The loss by trimming, which ranged from 10 to 40 per cent (the mean being probably about 25), was used in calculating the yield of trimmed beets per acre, (see 4, below).

(b.) *Sampling, obtaining the juice, "polarizing."*—Each beet of the sample, after trimming, was quartered longitudinally and one of the quarters from each taken, to form a moderate sized sample for working. This entire sub-sample was put through an "Enterprise" meat chopper and the pulp so obtained thoroughly mixed, enclosed in stout linen and pressed in a small cider press until no more juice could be obtained. The juice, after standing in cylinders for 20 to 30 minutes to settle, was tested in the usual manner for "total solids"—by sp. gr. spindle—and for sugar by the polariscope. [The accuracy of both instruments was established by delicate tests.]

## 3. CALCULATION OF SUGAR IN THE BEETS.

The polarization figures for sugar in the juice were multiplied by .95 and the results recorded in the table as sugar in the beets. The factor .95 may possibly be a *trifle* too high (last year's work, Bulletin No. 12, indicates that possibility), but since this is the factor in common use the world over and since a more accurate one has not been fixed upon, its use is continued here.

#### 4. ESTIMATION OF YIELD.

The yield of trimmed beets (see 2, above) in tons per acre was in each case calculated from data furnished by the grower (weight grown on a measured plat or in 50 feet of an average row) and from the percentage of loss which the sample actually suffered in trimming. Whenever the estimate thus obtained exceeded thirty tons of trimmed beets per acre the probability of its being an over-estimate seemed so great that it was recorded in the table as 30 .

#### 5 TERMS USED IN THE TABLE.

The term Brix signifies that the total solids in the juice were determined by means of a hydrometer—a sp. gr. or a Brix spindle—and not by drying the juice. [Readings on the sp. gr. spindle were converted into degrees Brix at  $17\frac{1}{2}^{\circ}$  C.]

The term Coefficient of Purity means the percentage of sugar in the total solids of the juice.

# ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

*Results arranged by Counties, commencing with the northernmost tier and proceeding by tiers southward.*

Sample No.	Number of Beets in sample.			Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET.		IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.	
	Largest and smallest. Ounces.	Mean. Ounces.					Planting.	Harvesting.	Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.					
1	6	21—8	14	.....		Klein Wanzlebener	May	10	Oct.	31	12.74	18.16	13.41	73.85	R. R. Witcox..	Milford.....	Dickinson.
2	5	19—7	11½	.....		Vilmorin.....	"	10	"	31	13.04	18.39	13.73	74.87	"	"	"
Mean.											12.89			74.26			
3	12	31—22	25	.....		Vilmorin.....	May	20	Nov.	4	13.69	19.12	14.41	75.39	S. G. Tyrrell..	Riceville.....	Mitchell.
4	10	31—17	21½	11		Klein Wanzlebener	"	15	Oct.	15	10.97	15.42	11.55	74.89	A. S. Thornburg	Orchard.....	"
5	6	46—2	14	11		"	"	18	"	19	11.97	17.48	12.60	72.09	John Hartogh..	New Haven....	"
6	6	17—14	15½	11		"	"	18	"	19	11.76	17.48	12.38	70.83	"	"	"
Mean.											12.10			73.30			
7	6	29—17	22	13		French.....	May	12	Oct.	10	14.72	20.57	15.49	75.34	Chas. Barnard.	Waukon.....	Allamakee.
8	4	64—46	54	13		German.....	"	12	"	10	11.27	16.97	11.87	69.95	"	"	"
9	4	47—24	37	20		French.....	"	13	"	8	13.63	18.38	14.34	78.25	"	"	"
10	6	48—19	31	24		German.....	"	13	"	8	14.94	19.46	15.72	80.81	"	"	"
11	7	50—17	33	30+		French.....	"	1	"	8	11.20	16.05	11.79	73.45	"	"	"
12	5	46—12	25½	30+		German.....	"	1	"	8	12.84	18.10	13.52	74.70	"	"	"
13	7	80—17	28	27		"Improved".....	"	13	"	20	11.28	17.19	11.87	69.05	"	"	"

14	6 84—25 49½	30	Lane's Improved..	May 15	Oct. 8	10.18	14.89	10.69	71.78	Chas. Barnard.	Waukon .....	Allamakee.
15	6 49—16 32	30	French Yellow...	" 11	" 11	9.88	13.97	10.17	72.78	"	"	"
16	6 36—22 28½	30	Vilmorin.....	" 12	" 11	11.64	16.51	12.25	74.20	"	"	"
Mean.						12.13			74.03			
17	13 20— 8 13			May 28		12.36	17.46	13.01	74.52	L. Christopher.	Graettinger ...	Palo Alto.
18	11 30— 8 16½		French.....	" 20	Oct. 27	13.56	19.49	14.28	73.29	Peter O'Byrne.	Lawler .....	Chickasaw.
19	13 48— 8 19		German.....	" 20	" 27	13.46	19.49	14.17	72.72	"	"	"
20	11 34— 5 15	17	Vilmorin.....	" 6	Oct. 23	12.84	18.81	13.51	71.84	N. E. Gary....	Bradford.....	"
21	11 38— 6 12½	15	"	" 9	" 28	12.99	18.14	13.68	75.38	"	"	"
Mean.						13.21			73.31			
22	4 63—35 49	20	German.....	May 6	Oct. 13	10.47	15.19	11.02	72.52	J. Wernli.....	LeMars.....	Plymouth.
23	4 45—38 40	23	French.....	" 6	" 13	10.07	14.95	10.60	70.89	"	"	"
Mean.						10.27			71.71			
24	6 47—30 38	16	Vilmorin.....	May 20	Oct. 17	10.44	15.02	11.00	73.16	S. C. Whittlesey	Cherokee ...	Cherokee.
25	6 32—17 22½					10.34	15.62	10.88	69.85	E. F. Iseminger	Marathon.....	Buena Vista.
26	6 55—27 41					8.89	13.55	9.36	69.10	J. O. Overholt.	Havelock.....	Pocahontas.
27	12 15— 7 10	13	French.....	May 13	Oct. 15	13.43	17.19	14.13	82.16	W. C. Norton .	Clarion.....	Wright.
28	12 12— 7 10	18	German.....	" 13	" 15	13.00	17.03	13.68	80.38	"	"	"
Mean.						13.22			81.26			
29	8 36—18 27½			May 24	Nov. 10	13.74	19.12	14.46	75.85	J. W. Bapp...	Hawkeya.....	Fayette.
30	6 34—15 26	20	French White....	" 20	Oct. 13	11.15	15.94	11.73	73.59	P. H. Winegar	Westgate.....	"
Mean.						12.45			74.62			

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

Sample No.	Number of Beets in sample		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
	Largest and smallest. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.			
31	641	2133½	27	27	Klein Wanzlebener	April 12	Oct. 12	11.18	18.65	11.77	70.69	J. W. X. Smith	Edgewood ....	Clayton.
32	654	2339	30+	30+	"	June 1	" 12	12.42	18.00	13.07	72.62	"	"	"
Mean.								11.80			71.66			
33	651	2439	14	14		May 1	Oct. 4	9.50	15.28	10.00	65.42	Wm. C. Ross..	Ida Grove....	Ida.
34	680	4760	16	16		" 15	Nov. 7	9.12	14.84	9.59	64.45	H. F. Meyer..	Odebolt .....	Sac.
35	642	1125	16	16		" 15	" 7	10.23	15.53	10.76	69.28	"	"	"
36	630	1925	16	16		" 15	" 7	10.47	15.53	11.02	70.95	"	"	"
Mean.								9.94			68.23			
37	10	45			German .....	May 1	Oct. 16	9.97	15.79	10.50	66.50	J. Herrington.	Ft. Dodge.....	Webster.
38	1242	2534½	30+	30+	German & French	" 1	" 12	12.50	17.24	13.15	76.30	W. C. Goodrich	Lehigh .....	"
39	1230	918½			"	April 20	" 15	8.85	14.20	9.31	65.55	G. L. Henry..	Ft. Dodge....	"
40	1244	1831½	29	29	German .....	May 15	" 12	10.90	14.43	11.45	76.69	S. P. Hancock	"	"
41	1242	1832			"	" 10	" 17	8.36	12.76	8.80	68.93	Sam Fallow...	"	"
42	1231	1121	20	20	German & French	" 10	" 22	11.57	17.87	12.18	68.15	T. W. Powers.	"	"
43	1233	1826	19	19	French.....	" 6	" 21	11.40	16.76	12.00	71.60	Wm. Kolb ...	"	"
44	1244	1022			White.....	April 10	" 20	13.65	15.76	14.37	79.72	Robt. Flattery.	"	"

45	8	34—18	24½	30+	German & French.	April 15	Oct. 10	11.93	17.49	12.55	71.77	A. Chantland..	Badger .....	Webster.
46	12	74—19	36½	20	German .....	May 15	" 22	9.39	14.72	9.87	67.03	S Watland, lot 1	" .....	"
47	12	72—16	45	25	French .....	" 15	" 22	9.00	13.85	9.47	68.41	" lot 2	" .....	"
48	12	14—6	11	20	German & French.	" 20	" 14	9.82	14.83	10.33	69.63	J. T. Brown..	Barnum .....	"
49	12	13—3	9	.....	.....	.....	.....	9.91	14.83	10.43	70.32	" .....	" .....	"
50	12	60—19	33	27	German .....	May 1	Oct. 9	10.43	15.46	10.97	70.97	Ira Rickard...	Callender .....	"
51	12	27—7	13	18	" .....	" 20	" 23	13.87	17.36	14.60	84.14	R. Hoff .....	" .....	"
52	12	16—7	9½	15	French .....	.....	.....	13.70	16.91	14.42	85.30	" .....	" .....	"
53	12	33—10	22	10	German .....	May 10	Oct. 13	10.29	15.21	10.83	71.19	Jno. Bakker..	Lehigh .....	"
54	12	14—4	9	.....	" .....	" 15	" 12	9.19	14.79	9.67	65.36	J. W. Bennett.	Kalo .....	"
55	12	45—26	33½	.....	.....	" 1	" 21	11.98	17.25	12.61	73.12	W. J. Hale....	" .....	"
56	12	37—18	28½	23	.....	June 13	Nov. 4	11.28	16.80	11.87	70.66	Clark Fuller..	" .....	"
57	12	32—12	20	14	French .....	May 1	Oct. 21	12.12	17.41	12.75	73.24	Wm. Pollock..	Clare .....	"
58	12	20—8	13½	25	German .....	April 20	" 23	10.95	16.07	11.52	71.67	D. T. Trusty..	Ft. Dodge....	"
59	12	26—8	16½	20	" .....	" 20	" 23	11.35	16.76	11.95	72.11	" .....	" .....	"
60	12	41—17	30	.....	.....	.....	.....	12.47	17.48	13.12	75.06	S. Ruffe.....	Burnside .....	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.04	.....	.....	72.23	.....	.....	.....
61	6	74—14	37½	.....	.....	.....	.....	11.33	16.85	11.93	70.80	W. G. Gilman.	Jewell .....	Hamilton.
62	6	84—32	53½	30+	.....	May 15	Nov. 4	11.28	16.15	11.87	73.50	T. F. Baldus..	" .....	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.31	.....	.....	72.15	.....	.....	.....
63	10	.....	45	19	.....	May 1	Oct. 24	11.77	17.09	12.39	72.50	G. A. Ivins ...	Iowa Falls...	Hardin.
63½	6	55—11	30	.....	.....	.....	.....	9.36	15.85	9.85	62.12	A. S. Desmarais	Grundy Center	Grundy.
64	9	15—7	11	8	German .....	June 1	.....	11.72	17.03	12.33	72.41	W. H. Steimel.	Eagle Center..	Black Hawk.
65	12	.....	7½	6	French .....	" 1	.....	12.93	17.71	13.61	76.87	" .....	" .....	"
66	1	.....	20	.....	Klein Wanzlebener	May 15	Oct. 15	12.37	17.03	13.02	76.47	Bozarth Bros..	Cedar Falls...	"
67	1	.....	18	.....	" .....	" 15	" 15	10.34	15.42	10.88	70.55	" .....	" .....	"
68	10	33—9	22	.....	" .....	" 15	" 15	12.17	17.71	12.81	72.34	" .....	" .....	"
69	4	42—32	36	.....	" .....	" 28	.....	6.66	12.05	7.01	58.19	Phil Eiler....	" .....	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.03	.....	.....	71.14	.....	.....	.....



ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Mean. Ounces.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.					Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.			
70	4	42—37	40	8	Klein Wanzl. . . . .	May 15	Oct. 10	10.90	15.13	11.47	75.80	W. A. Rogers. . .	Independence.	Buchanan.	
71	11	27—10	18½	...	German. . . . .	May 26	Oct. 17?	11.79	17.21	12.41	72.11	{ M. Burds and N. Freimann }	Peosta. . . . .	Dubuque.	
72	15	.....	35	...	German. . . . .	"	"	11.40	16.76	12.00	71.60		{ J. S. Smead, M. Biehl, E. Pinch, Sr. }	"	"
73	6	44—19	28½	...	.....	"	"	11.26	16.57	11.85	71.77	Gottlieb Sefzik. .	"	"	
74	13	23—7	16	...	German & French.	"	"	13.33	19.29	14.02	72.69	J. M. Allison. . .	"	"	
75	10	28—11	18½	...	German. . . . .	"	"	16.79	23.32	17.67	75.77	.....*	"	"	
76	2	19—12	15½	...	.....	"	"	16.04	21.35	16.88	79.05	{ C. H. Brant. } { N. Freimann }	"	"	
Mean.	.....	.....	.....	.....	.....	.....	.....	13.43	.....	.....	73.83	.....	.....	.....	
77	8	24—17	19	20	German. . . . .	May 7	Oct. 18	11.82	17.58	12.44	70.78	Jas. W. Davis. . .	Turin. . . . .	Monona.	
78	8	33—19	27	27	French. . . . .	" 7	" 18	10.26	15.76	10.79	66.91	"	"	"	
Mean.	.....	.....	.....	.....	.....	.....	.....	11.04	.....	.....	68.85	.....	.....	.....	
79	1	.....	23	.....	Vilmorin's Imp. . .	†	.....	12.90	17.36	13.58	78.24	M. Simon. . . . .	Carroll. . . . .	Carroll.	
80	1	.....	9	.....	"	.....	.....	13.42	18.00	14.12	78.46	"	"	"	

81	1	29	Vilmorin's Imp...			11.58	15.59	12.19	78.19	M. Simon	Carroll	Carroll	
82	1	11	"			10.59	15.00†	11.15	74.32	"	"	"	
83	1	30	"			11.20	16.05	11.79	73.46	"	"	"	
84	2	27-24 25½	"			11.51	15.82	12.11	76.57	"	"	"	
85	2	23-12 17½	"			11.23	15.83	11.82	74.71	"	"	"	
86	28	14	"			11.49	16.00†	12.09	75.57	"	"	"	
87	6	25-13 16	21	June 11	Oct. 16	13.87	18.78	14.60	77.77	"	"	"	
88	6	20-10 14		"	" 14	13.06	18.33	13.7-	75.03	"	"	"	
89	6	19-13 15½	15	June 8	" 22	13.10	17.65	13.79	78.15	M. Kimble	"	"	
90	6	26-16 22		"	" 10	12.47	18.02	13.13	72.87	M. Simon	"	"	
90½	6	10-4 7		"	" 18	8.57	16.28	9.02	55.43	"	"	"	
91	6	30-16 21½	20	"	" 15	12.60	17.56	13.26	75.53	"	"	"	
92	6	18-11 13½	15			14.37	19.82	15.12	76.31	"	"	"	
93	6	35-17 26½	22	June 20	Oct. 22	12.34	17.42	12.99	74.57	"	"	"	
94	6	15-8 10	17	"	" 10	11.15	16.65	11.74	70.51	"	"	"	
95	6	15-9 12		May 12	" 16	11.87	17.42	12.49	72.85	"	"	"	
Mean						12.08			74.36				
96	6	26-12 19	30	Klein Wanzl	April 30	Oct. 16	10.94	15.71	11.51	73.26	A. G. Wise	Jefferson	Greene
97	4	46-16 28		"	" 30	" 16	10.92	15.71	11.49	73.13	"	"	"
98	5	56-37 47		"	" 30	" 16	9.28	14.56	9.77	67.07	"	"	"
99	3	42-33 37		Vilmorin	" 30	" 16	9.85	14.56	10.37	71.21	"	"	"
100	3	55-38 45		Wahanka	April 30	Oct. 16	8.51	12.22	8.96	73.36	"	"	"
101	3	69-42 54½		"	" 30	" 16	7.09	11.28	7.46	66.16	"	"	"
102	4	33-15 24½		Vilmorin	" 30	" 16	10.69	14.56	11.25	77.26	"	"	"
103	6	37-21 29		French			10.02	15.94	10.54	66.11	John Gulic	Grand June	"
104	6	40-24 31		"			9.42	15.71	9.92	63.13	"	"	"
105	10	17-8 12		German			10.62	16.40	11.16	68.04	Jas. Underwood	"	"
Mean							9.73			69.87			

\* Four beets sent by J. M. Allison, and one each by Elias Pinch, Michael Biehl, J. S. Smead, T. Callahan, B. F. Moore and M. Burds.

† Assumed.

‡ Samples 79 to 86, inclusive, were M. Simon's first lot, harvested about 15 days earlier than the rest of his samples.

## ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.			Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.					Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.			
106	7	22—16	18	....	.....	German .....	April 20	Oct. 19	9.58	15.01	10.08	67.13	R. D. Lrunton.	Boonsboro . . .	Boone.
107	5	37—13	23	....	.....	.....	.....	.....	10.57	15.76	11.12	70.75	Tom. L. Jones.	Ontario .....	Story.
108	4	26—12	16½	12	.....	Vilmorin .....	May 26	.....	13.72	18.70	14.44	77.23	Eugene Wood..	Marshalltown..	Marshall.
109	2	35—17	26	12	.....	" .....	" 26	Oct. 23	12.75	17.31	13.42	77.54	" .....	" .....	" ..
110	6	19— 8	13	.....	.....	" .....	" .....	" .....	10.99	15.48	11.57	74.73	E. N. Chapin. .	" .....	" ..
111	2	16—14	15	.....	.....	" .....	" .....	" .....	12.76	18.55	13.43	72.41	A. T. Birchard.	" .....	" ..
112	2	20—18	19	.....	.....	" .....	" .....	" .....	11.49	16.98	12.09	71.21	" .....	" .....	" ..
113	2	12—10	11	.....	.....	" .....	" .....	" .....	13.14	19.23	13.83	71.94	" .....	" .....	" ..
114	2	18—14	16	.....	.....	" .....	" .....	" .....	12.14	18.10	12.78	70.61	" .....	" .....	" ..
115	2	16—12	14	.....	.....	" .....	" .....	" .....	10.80	17.87	11.36	63.57	" .....	" .....	" ..
116	2	23—17	20	.....	.....	" .....	" .....	" .....	10.90	17.00	11.47	67.46	" .....	" .....	" ..
117	2	12—12	12	.....	.....	" .....	" .....	" .....	12.44	19.52	13.09	67.07	" .....	" .....	" ..
118	2	21—19	20	.....	.....	" .....	" .....	" .....	13.58	20.63	14.29	69.28	" .....	" .....	" ..
119	2	11—10	10½	.....	.....	" .....	" .....	" .....	14.78	18.84	15.56	82.63	" .....	" .....	" ..
120	2	11— 9	10	.....	.....	" .....	" .....	" .....	14.86	21.08	15.64	74.22	" .....	" .....	" ..
121	2	16—14	15	.....	.....	" .....	" .....	" .....	13.76	19.49	14.48	74.31	" .....	" .....	" ..
122	2	10— 9	9½	.....	.....	" .....	" .....	" .....	15.30	21.93	16.10	73.44	" .....	" .....	" ..
123	2	13—12	12½	.....	.....	" .....	" .....	" .....	13.80	19.26	14.52	75.42	" .....	" .....	" ..
124	2	12— 9	10½	.....	.....	" .....	" .....	" .....	15.22	21.05	16.02	76.14	" .....	" .....	" ..

125	2	14—13	13½									14.21	19.71	14.96	75.93	A. T. Birchard.	Marshalltown	Marshall.
126	2	16—15	15½									14.56	21.90	15.33	70.03	“	“	“
127	2	24—18	21									10.53	16.97	11.08	65.93	N. Kirk.....	Bangor	“
Mean.												13.09			72.55			
128	6	42—9	25½	23	Klein-Wanzl.....		Oct.	13	7.54	11.62	7.93	68.27	W. C. Boggs..	Vinton.....	Benton.			
129	5	63—17	36	20	Vilmorin.....		“	12	10.07	14.67	10.60	72.24	S. T. Shorter..	“	“			
180	6	52—13	30	21	“		“	10	8.57	14.67	9.02	62.95	S. M. Edwards	“	“			
131	6	92—18	39	25			May	1	9.32	15.48	9.81	63.36	Nick Dilcher..	Garrison.....	“			
132	2	43—29	36						9.72	16.02	10.23	63.80	J. B. Reeve...	“	“			
Mean.									9.04			66.12						
133	5	86—33	56	25	Klein-Wanzl.....	May	1	Sept. 22	9.65	14.95	10.16	67.93	David Wild...	Springville...	Linn.			
134	9	27—18	22½	25	“	“	1	“	10.07	14.95	10.60	70.88	“	“	“			
135	8	28—18	22	23	“	“	1	Oct. 12	10.14	15.80	10.67	67.51	“	“	“			
136	6	25—15	19		“	“	1	“	11.15	15.84	11.74	70.38	“	“	“			
137	10	55—27	39½		French.....				10.30	15.80	10.83	68.53	Lefebure & Son	Fairfax.....	“			
138	7	30—12	24		“				9.96	15.80	10.48	66.31	Mr. McGregor.	“	“			
139	6	30—12	21						11.17	16.11	11.76	73.00	J. F. Burke...	Lisbon.....	“			
140	10	14—5	10						13.67	18.38	14.39	78.31	“	“	“			
Mean.									10.76			70.36						
141	2	52—44	48	21	Klein-Wanzl.....	May	16	Oct. 23	8.32	12.56	8.76	69.79	E. B. Irwin...	Irwin.....	Shelby.			
142	6	24—8	14½		Klein-Wanzl.....	May	8	Sept. 19	6.91	13.43	7.26	54.15	Jas. Sullivan..	Stuart.....	Guthrie.			
143	6	21—4	11½		“	“	8	Oct. 31		17.12	Lost.		“	“	“			
Mean.																		
144	6	21—11	17	20	Vilm. (sheep manure).	June	1	Oct. 14	13.73	18.41	14.45	78.51	J. H. Conly...	Perry.....	Dallas,			
145	6	27—17	21	24	Vilmorin (on hog lot).	May	1	“ 14	13.20	18.18	13.89	76.42	“	“	“			

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample	Weight of Beets after trimming.		Estimated yield of trimmed Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent	IN THE EX-PRESSED JUICE			GROWN BY	P O ADDRESS	COUNTY.
		Largest and smallest. Ounces.	Mean. Ounces.			Planting	Harvesting.		Solids (Brix) Per cent	Sugar (by polarization).	Purity Coefficient.			
146	7	49	18.28	17	Klein Wanzl	May	1 Oct. 14	13.07	17.50	13.76	78.64	J. H. Conly	Perry	Dallas.
147	6	37	21.27	24	"	April	25 "	13.86	15.90	12.48	78.49	Asa Petty	"	"
148	6	27	18.21		"	May	14 "	10.87	15.44	11.23	72.72	F. M. Hain	"	"
149	6	17	8.11 1/2		Vilmorin	"	3 "	12.46	17.69	13.11	74.12	Robt. Skinner	"	"
150	6	25	16.20	20	"	"	20 "	13.70	19.27	14.42	74.85	A. Thornburg	"	"
151	5	14	4.9 1/4	15	Klein Wanzl	"	10 "	11.18	17.90	11.77	65.75	John Troth	"	"
152	6	19	12.15		"	"	7 "	11.59	17.00	12.20	71.77	Sam Brewer	"	"
153	6	28	12.18 1/2	23	Vilmorin	June	1 "	14.18	18.86	14.93	79.16	S. Cooper	"	"
154	6	34	12.18 1/2	17	Klein Wanzl	May	10 "	13.87	18.18	14.60	80.33	C. E. Duntap	"	"
155	6	38	19.29	26	"	"	15 "	12.64	17.95	13.30	74.10	W. A. Ulum	"	"
156	6	18	9.12	17	"	"	18 "	11.62	17.05	12.23	71.73	S. R. Emms	"	"
157	6	44	19.33	30+	Klein Wanzl	June	1 "	12.54	18.18	13.20	72.61	J. R. Phillips	"	"
158	6	42	30.36	30+	"	May	14 "	7.48	12.20	7.87	64.53	Swan Ingleson	"	"
159	6	34	12.22 1/2	27	"	May	20 "	11.13	15.37	11.71	76.19	Geo. Roberts	"	"
160	6	30	14.23	14	Vilmorin	"	15 "	9.98	15.22	10.50	68.96	J. A. Russell	Woodward	"
161	6	23	16.20	14	Vilmorin	"	1 "	12.29	16.88	12.93	76.61	F. J. Jones	Perry	"
162	6	20	13.17	13	Klein-Wanzl	May	20 Oct. 9	12.19	17.33	12.83	74.04	Thos. Council	"	"
163	6	8	3.5	20	"	"	1 "	12.44	18.25	13.09	71.84	"	"	"
164	6	22	9.16	14	"	June	1 "	10.59	17.05	11.25	65.98	Harry Conly	"	"
165	6	20	13.15	22	"	May	1 "	10.11	15.91	10.64	66.86	"	"	"
166	6	132	40.64	30	White Sugar	"	10 "	5.96	12.19	6.27	51.43	H C Griswold	"	"

167	6 50—21 34	26	Klein-Wanzl.....	May	1	Oct.	20	9.64	15.68	10 14	64.65	Rev. S. Jones..	Perry .....	Dallas.
168	6 29—12 22	16	Vilmorin .....	"	1	"	20	10.97	16.40	11.54	70.36	Harry Conly ..	" .....	"
169	5 28—11 18½	13	Klein-Wanzl.....	June	15	"	20	12.08	16 40	12 69	77.39	Wm Pepper..	" .....	"
170	6 31—20 24	29	" .....	May	25	"	20	12.77	17 31	13 44	77.66	Em'ry Stebbins	" .....	"
171	6 .....	6	" .....	"	20	"	19	12.60	16.91	13 26	78.45	Frank Warren.	" .....	"
172	3 50—28 40	30+	" .....	"	15	"	20	9.87	16 91	10 39	81.42	L Willis .....	" .....	"
173	6 27—15 20	25	" .....	"	15	"	19	10.36	15 07	10 90	72.32	A. D. Coffee ..	" .....	"
174	6 20—10 14	23	" .....	"	20	"	18	12.24	17 13	12 88	73.49	Wm. Bellmore	" .....	"
175	6 25—16 21	28	Vilmorin .....	"	15	"	18	11.81	16.40	12.43	75.80	Truman Buck.	" .....	"
176	6 76—52 64	25	" .....	"	15	"	19	11.15	15 76	11 73	74.42	Wm Fahey...	" .....	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.57	.....	.....	72.78	.....	.....	.....
177	6 26—10 18½	24	Vilmorin .....	April	24	Oct.	17	10.90	16.28	11.47	70.45	R. Fullerton ..	Des Moines...	Polk.
178	6 39—14 26	30	Klein.Wanzl.....	"	24	"	17	11.55	17.42	12.15	69.75	" .....	" .....	"
179	6 23—8 14	15	Diamond .....	May	5	"	15	11.48	15.88	12.07	76.01	Paul Fisher...	Levey .....	"
180	7 17—6 12	15	Klein-Wanzl.....	"	5	"	15	13.08	17.48	13.77	78.79	" .....	" .....	"
181	7 23—4 15	12	White French ..	"	5	"	15	11.00	15.64	11.58	74.03	" .....	" .....	"
182	7 24—5 14	25	Lane's Imperial.	"	5	"	15	9.36	12.85	9.85	76.63	" .....	" .....	"
183	7 26—4 12½	12	Best German.....	"	5	"	15	10.95	14.77	11.52	78.00	" .....	" .....	"
184	8 16—3 9	6	Vilmorin.....	"	5	"	15	12.20	17.08	12.84	75.18	" .....	" .....	"
185	6 14—4 8	20	" .....	"	9	"	16	11.80	16.62	12.42	74.73	Mrs. J. A. Woods..	Des Moines...	"
186	6 22—14 20	26	" .....	"	26	"	9	12.10	16.88	12.80	75.84	W. H. Morgan	Des Moines...	"
187	6 52—27 42	23	Lane's Imperial..	"	15	"	20	8.47	12.91	8.91	69.05	C. W. Wilcox.	Commerce .....	"
188	6 30—30 33	20	Vimorin.....	"	15	"	20	10.54	14.94	11.09	74.22	" .....	" .....	"
189	2 17—14 15½	9	German .....	"	2	"	19	.....	16.32	Lost.....	.....	DDFarnsworth	Clive .....	"
190	2 24—11 17½	10	Vilmorin.....	"	2	"	19	10.47	16.32	11.02	67.50	" .....	" .....	"
191	2 50—40 45	22	Diamond .....	"	23	"	19	10.78	14.94	11.34	75.90	" .....	" .....	"
192	2 53—33 43	.....	Diamond .....	"	28	"	28	12.06	18.39	12.69	69.01	Jos Askew...	Ashawa .....	"
193	2 38—31 34½	.....	Lane's Imp.....	"	28	"	28	11.86	17.25	12.48	72.35	" .....	" .....	"
194	2 44—41 42½	.....	White French ..	"	2	"	23	11.59	17.03	12.20	71.64	" .....	" .....	"
195	2 33—31 32	.....	Vilmorin .....	"	28	"	23	13.71	19.29	14.43	74.82	" .....	" .....	"
197	2 57—44 50½	.....	Best German .....	"	28	"	23	11.72	18.62	12.33	66.22	" .....	" .....	"
Mean.	.....	.....	.....	.....	.....	.....	.....	11.35	.....	.....	73.17	.....	.....	.....

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Weight of Beets after trimming.			Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.	Estimated yield of trim'd Beets per acre.			Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.			
198	531—1924	34	29	German	May	20	Oct. 22	9.78	14.67	10.29	70.13	Mrs. Jno. Ryan	Prairie City	Jasper
199	635—2229	34	30+	"	"	20	" 22	"	16.00	10.29	"	Chas. Walker	"	"
200	640—1928	30	30+	"	"	30	" 22	12.24	16.91	12.88	76.00	A. Prentice	"	"
201	637—2130	34	31	"	"	18	" 16	12.60	18.82	13.26	70.47	A. F. Wilson	"	"
202	643—2837	30	30+	"	"	20	" 22	12.07	17.68	12.70	71.84	W. K. Blain	"	"
203	638—1525	34	28	"	June	1	" 22	10.42	15.95	10.96	67.14	R. Charles	"	"
204	628—1119	30	30	"	May	15	" 22	12.80	15.95	13.57	85.09	H. J. Sheaver	"	"
205	640—2231	30	30+	"	"	20	" 22	9.53	15.22	10.03	65.88	S. Johnson	"	"
206	664—3643	34	19	"	"	14	" 22	10.72	15.76	11.28	71.57	I. Bruner	"	"
207	623—917	21	21	"	"	18	" 13	10.62	17.13	11.18	65.20	J. Timmons Sr.	"	"
208	672—3853	29	29	"	"	15	" 19	9.08	14.61	9.55	65.34	A. J. Wiggins	"	"
209	664—2546	30	30+	"	"	15	" 22	10.14	15.45	10.67	69.04	Mrs W. Wagner	Fairmount	"
210	628—1823	30	30	"	"	19	" 24	10.67	15.99	11.12	69.54	J. Smith	Prairie City	"
211	624—1018	22	22	"	"	20	" 26	10.11	16.05	10.64	66.28	S. D. Butters	"	"
212	634—1824	23	23	"	June	1	" 26	10.69	16.97	11.25	66.28	"	"	"
Mean								10.82			69.27			
213	653—2941	30	30+	French	May	9	Oct. 16	11.09	16.40	11.67	71.16	E. W. Hubbard	Norwalk	Warren.*
214	649—2030	30	20	Diamond	"	10	" 15	10.69	16.32	11.24	68.86	L. A. Stevenson	Indianola	"
								10.89			69.51			

215	652—19	36	27	.....	May 15	Oct. 17	9.48	15.58	9.98	64.05	G. Roorda....	Pella.....	Marion.*
216	674—19	38	23	.....	" 15	" 17	9.33	14.66	9.82	66.96	P. J. Koelman.	".....	"
217	641—15	29	28	Klein Wanzl	" 24	" 22	10.42	14.88	10.96	73.89	J. E. Visser...	".....	"
218	623—11	17	26	"	" 23	" 22	13.82	19.04	14.54	76.39	Wm. Visser...	".....	"
219	640—24	30	30+	"	" 16	" 22	12.52	18.59	13.18	70.91	Jno. Visser...	".....	"
220	634—21	28	.....	.....	.....	.....	14.41	20.26	15.17	74.90	G. Van der Weide	".....	"
221	660—39	51	.....	German.....	June 12	" 19	12.19	18.02	12.83	71.21	A. De Penning	".....	"
222	676—36	58	28	Vilmorin.....	April 20	" 24	10.23	16.23	10.77	67.89	T. Ver Beek..	".....	"
223	572—60	67	.....	.....	.....	.....	8.69	14.61	9.15	65.37	L. Nells.....	".....	"
224	645—22	33	.....	.....	.....	.....	8.62	16.07	9.07	56.47	G. Coum.....	".....	"
225	658—39	49	30+	German.....	June 10	" 27	12.01	16.98	12.64	74.44	B. Goemaat...	".....	"
226	684—32	47½	.....	.....	.....	.....	10.89	16.76	11.46	68.39	I. Van Niewaal	".....	"
227	664—32	45½	.....	.....	.....	.....	9.05	14.92	9.52	63.78	T. Van Niewaal	".....	"
228	676—44	52	30+	.....	.....	.....	6.45	12.65	6.79	53.69	E. Ver Ploegh.	".....	"
229	640—22	28	.....	.....	May 24	" 15	10.22	16.14	10.75	66.59	W. A. Chord..	".....	"
230	637—19	26	21	.....	" 30	" 20	11.02	17.73	11.59	65.37	M. Verros....	".....	"
231	657—19	33	20	Vilmorin.....	" 16	" 15	9.20	15.68	9.69	61.71	T. Verros....	".....	"
232	650—28	38	28	German.....	" 20	" 24	8.50	15.13	8.94	59.12	R. Johnson...	Percy.....	"
233	626—12	20	22	"	" 15	" 27	8.83	14.89	9.29	62.42	Jno. E. Roorda.	Durham.....	"
234	656—20	40	30+	"	" 15	Nov. 4	11.96	18.36	12.59	68.57	K. Verhey...	Pella.....	"
235	645—19	31	.....	Best German	" 10	" 4	12.49	18.81	13.15	68.32	C. Kooljman...	".....	"
136	653—33	40	.....	German.....	" 8	" 4	11.59	18.13	12.20	67.29	H. Von Well..	".....	"
237	663—39	57	.....	Best German	" 11	" 5	10.33	17.25	10.87	63.00	M. Van Goop..	".....	"
238	652—32	38	.....	German.....	June 15	" 8	10.66	17.03	11.22	65.88	G. Van Der Veen	".....	"
Mean.	.....	.....	.....	.....	.....	.....	10.54	.....	.....	66.53	.....	.....	.....
239	619—9	13½	.....	.....	.....	.....	12.29	17.99	12.94	71.94	J. J. Sloan....	Brooklyn.....	Poweshiek.
240	638—23	30	.....	.....	.....	.....	11.48	16.40	12.08	73.66	".....	".....	"
Mean.	.....	.....	.....	.....	.....	.....	11.89	.....	.....	72.80	.....	.....	.....
241	1.....	40	.....	Champion.....	.....	.....	9.33	13.55	9.82	72.45	G. W. Barclay	Rochester.....	Cedar.
242	324—18	20½	20	Vilmorin's Imp...	April 5	Oct. 5	11.18	15.20	11.77	77.43	".....	".....	"

\* Warren and Marion counties are placed here, out of their order by tiers, to bring all the Commercial Exchange (Des Moines) beets together—Nos. 144 to 238 inclusive.



ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.		Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF			IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY.	P O ADDRESS.	COUNTY
	Largest and small-est. Ounces.	Mean. Ounces.	Planting.	Harvesting.			Solids (Brix). Per cent.	Sugar (by polarization) Per cent.	Purity coefficient.							
243	326	—15	21½	20	Klein-Wanzl	April 5	Oct. 5	5	12.51	16.10	13.17	81.82	G. W. Barclay	Rochester	Cedar.	
244	438	—21	26	20	"	" 5	" 5	5	12.96	17.69	13.64	77.12	"	"	"	
Mean.									11.50			77.21				
245	234	—24	29	30+	Desprez	May 28	Oct. 6	6	15.31	20.50	16.11	78.57	Wm. Kose	Davenport	Scott.	
246	285	—16	50¾	18	"	" 15	" 11	11	9.71	14.00	10.22	72.98	J. R. Porter	Blue Grass	"	
247	215	—14	14¾		"	" 20	" 24	24	13.43	18.78	14.14	75.31	B. H. Lage	Davenport	"	
248	285	—18	26¾		"	" 28	" 24	24	10.20	17.19	10.72	62.40	W. Steinhoff	"	"	
249	240	—31	35¾	22	"	April 15	" 20	20	16.33	21.73	17.19	79.10	Joachime Qualtzow	"	"	
250	227	—22	24¾	19	Vilmorin	May 11	" 25	25	12.45	19.35	13.10	67.71	J. B. Kehoe	Long Grove	"	
251	2			22	"	" 26	" 26	26	16.62	24.22	17.49	72.21	J. E. McConnell	Le Claire	"	
Mean.									13.44			72.61				
252	623	—5	14	22	Klein Wanzl	May 1	Oct. 5	5	12.26	16.08	12.90	80.23	W. H. Hoopes & Son	Muscatine	Muscatine.	
253	624	—10	15¾	22	Vilmorin No 1*	" 1	" 5	5	12.21	17.00	12.85	75.59	"	"	"	
254	621	—11	15	22	Vilmorin No. II*	" 1	" 5	5	11.91	16.32	12.58	76.78	"	"	"	
255	642	—20	29¾		Klein Wanzl	" 15	" 5	5	8.32	13.06	8.76	67.11	L. Hoopes	"	"	
256	623	—13	19		Vilmorin No I	" 7	" 5	5	12.58	15.85	13.24	83.55	G. W. Billings	"	"	
257	624	—13	18		Klein Wanzl	" 20	" 5	5	10.88	14.23	11.45	80.46	C. Kleist	"	"	

\*Vilmorin I and Vilmorin II indicate different lots of Vilmorin seed.

258	6 34-12 24	....	"	.....	May 24	Oct.	5	11.44	16.32	12.04	73.77	H. Nicholson..	Muscatine	....	Muscatine.
259	6 32- 9 23	....	Vilmorin No. I...	....	" 15	"	5	13.26	18.15	13.96	76.76	G. S. Bird....	"	....	"
260	6 30-20 24 1/2	....	Klein Wanzl.....	....	" 1	"	5	11.29	15.23	11.88	78.00	M. D. Manlove	"	....	"
261	6 27-13 18 1/8	....	"	....	" 20	"	5	10.51	14.77	11.06	74.87	J. A. Eaton...	"	....	"
262	6 34-18 24	17	Vilmorin No. I...	....	" 16	"	5	12.05	17.08	12.68	74.24	H. B. Breckenridge	"	....	"
263	6 27-17 13	....	"	....	"	"	5	12.42	15.40	13.07	84.88	Elisha Beatty.	"	....	"
264	6 25-20 22	....	Vilmorin No. II..	....	" 12	"	5	10.25	13.77	10.78	78.33	S. B. Landis..	"	....	"
265	6 28-16 22 1/2	....	Klein Wanzl.....	....	" 12	"	3	13.34	18.15	14.04	77.38	J. H. Hubacher	"	....	"
266	7 25-10 17	....	Vilmorin No. I...	....	"	"	5	13.94	19.27	14.67	76.17	J. W. Hoopes.	"	....	"
267	6 21-14 18	....	"	....	April 29	"	5	14.01	18.37	14.74	80.26	J. Wackerlin..	"	....	"
268	6 39-29 35	....	Vilmorin No. II..	....	May 15	"	5	9.82	13.76	10.32	74.97	H. R. Small...	"	....	"
269	6 35-31 33	....	Vilmorin No. I...	....	" 3	"	5	13.53	18.30	14.24	77.84	W. J. Barger...	"	....	"
270	6 32-12 19	....	Klein Wanzl.....	....	" 18	"	5	10.63	15.79	11.19	70.86	R. McCampbell	"	....	"
271	6 24- 8 15	....	Vilmorin No. II..	....	" 11	"	5	14.46	19.65	15.22	77.48	Milton Rice...	"	....	"
272	5 33- 9 14	....	Vilmorin No. I...	....	" 20	"	5	12.52	16.47	13.18	80.03	A. Klenduph..	"	....	"
273	6 18- 8 11	....	Klein Wanzl.....	....	June 1	"	5	12.88	17.69	13.56	76.67	W. McGregor.	"	....	"
274	6 26-15 19	....	Vilmorin No. I...	....	May 6	"	5	9.66	15.32	10.17	66.36	E Barnhardt..	"	....	"
275	6 23-18 20 1/2	....	Vilmorin No. II..	....	" 1	"	5	9.54	13.82	10.04	72.62	John Barnard.	"	....	"
276	6 30-10 21	....	Klein Wanzl.....	....	" 21	"	7	9.68	16.14	10.17	63.00	S. Humphreys.	"	....	"
277	6 26-11 17	....	Vilmorin No. I...	....	" 33	"	5	15.60	20.64	16 42	79.59	H Neimeier..	"	....	"
278	6 40-22 29 1/2	....	Vilmorin No. II..	....	" 1	"	5	13.04	18.63	13.72	73.49	C. L. eiendecker	"	....	"
279	6 30-21 27	....	Klein Wanzl.....	....	" 15	"	5	12.04	15.92	12.67	79.59	John Starke...	"	....	"
280	6 19-11 15 1/2	....	Vilmorin No. I...	....	" 15	"	5	11.37	15.71	11 97	76.20	W D. Page....	"	....	"
281	6 34-16 25	....	"	....	" 5	"	5	11.37	15.94	11.97	75.15	S. G Stein....	"	....	"
282	6 24-13 17 1/2	....	Klein Wanzl.....	....	" 11	"	5	11.54	17.10	12.15	71.06	G Mittman...	"	....	"
283	6 27-12 19	....	Vilmorin No. I...	....	" 11	"	5	13.06	18.22	13.74	75.42	Robt. Mittman	"	....	"
284	6 36-14 19	....	"	....	" 6	"	5	12.78	16.90	13.45	79.60	Niles Sherfey.	"	....	"
285	6 16- 5 9	....	Vilmorin No. II..	....	" 12	"	5	12.66	17.13	13 32	77.77	J. Pyeatt....	"	....	"
286	6 28-12 19	....	Klein Wanzl.....	....	" 28	"	6	11.82	16.22	12.44	76.70	G. F. Funck...	"	....	"
287	6 30-18 22	....	Vilmorin No. I...	....	" 20	"	5	11.87	16.90	12.49	73.91	S G. Stein....	"	....	"
288	6 30-13 20 1/2	....	"	....	" 7	"	6	11.94	16.90	12.57	74.38	Phil Murphy..	"	....	"
289	6 30-12 20	....	"	....	" 1	"	6	12.75	16 90	13.42	79.42	W. Happer...	"	....	"
290	6 28-17 22	....	Klein Wanzl.....	....	" 8	"	5	13.01	17.13	13.69	79.93	Geo. Weiman...	"	....	"
291	6 46-20 31	....	Vilmorin No. I...	....	" 6	"	6	12.69	18.03	13.36	74.11	G J Freers...	"	....	"
292	6 22-10 15	....	Klein Wanzl.....	....	" 5	"	6	13.07	17.25	13 75	79.73	C. Graff.....	"	....	"
293	6 27-18 22	....	Vilmorin No. I...	....	" 5	"	6	11.72	15.88	12 33	77.80	Hahn Bros. & Co	"	....	"

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891— CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O ADDRESS.	COUNTY.
	Largest and smallest. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.			
294	6 41	— 15	23 1/2	...	Vilmorin No. 11..	May 15	Oct. 6	12.01	17.25	12.64	73.28	H. Bailey....	Adams.....	Muscatine.
295	6 34	— 11	19	...	Vilmorin No. 1...	" 15	" 6	12.64	16.34	13.30	81.40	Mrs. L. Koll..	Muscatine....	"
296	7 20	— 8	14 1/2	...	Klein Wanzl.....	" 8	" 6	12.77	17.87	13.44	76.51	C. Kindler Sr.	".....	"
297	6 34	— 16	24	...	".....	" 18	" 5	12.03	17.42	12.66	72.68	S. T. Sennett.	".....	"
298	6 23	— 12	16	...	Vilmorin No. 1...	" 25	" 6	10.29	15.12	10.83	70.09	J. E. Hoopes..	".....	"
299	6 21	— 10	15	...	".....	" 20	" 6	13.55	18.10	14.26	78.80	Jas. Adams...	Fruitland....	"
300	7 19	— 7	12	...	".....	" 3	" 6	12.68	16.51	13.34	80.81	Fred Daut....	Muscatine....	"
301	6 19	— 11	16	...	Vilmorin No. 11..	" 15	" 6	11.74	15.82	12.36	78.13	Claus Koll....	".....	"
302	6 27	— 12	19 1/2	...	".....	" 6	" 6	10.93	15.12	11.50	76.06	B. F. Nichols.	Nichols Station	"
303	6 34	— 15	21 1/2	...	Vilmorin No. 1...	" 12	" 6	11.11	16.06	11.64	72.47	J. H. Cole....	Muscatine....	"
304	6 32	— 14	21	...	".....	" 5	" 7	9.85	13.73	10.37	75.33	Jas Briar....	".....	"
305	6 21	— 14	18	...	".....	" 10	" 7	10.49	14.89	11.04	74.13	Jas. Pemble..	Wapello.....	Louisa.
Mean	for Lot	I, M	usca		tine Beets.....			11.96			76.07			
306	6 20	— 11	14 1/2	21	Vilmorin No. 11..	May 16	Oct. 15	10.99	16.45	11.56	70.27	Wm. Hoopes & SON.	Muscatine.	Muscatine.
307	6 17	— 9	13 1/2	21	Vilmorin No. 1...	" 16	" 15	13.42	18.49	14.12	76.39	"	"	"
308	6 35	— 11	20	21	Klein Wanzl.....	" 16	" 15	13.10	17.36	13.79	79.45	"	"	"
309	6 26	— 10	19 1/2	...	".....	" 12	" 12	12.44	15.76	13.09	83.07	Wm Hoffman.	"	"
310	6 25	— 15	19 1/2	...	Vilmorin No. 1...	" 12	" 12	11.19	17.13	11.78	68.78	"	"	"
311	6 30	— 11	21 1/2	...	Vilmorin No. 11..	" 12	" 12	11.88	16.22	12.50	77.08	"	"	"

312	6 12— 8 10	20	Vilmorin No. I. . . .	June 1	Oct. 15	12.90	17.13	13.58	79.29	W. McGregor.	Muscatine. . . .	Muscatine.
313	6 26—11 21	21	"	May 10	" 15	12.88	16.45	13.55	82.39	Fred. Stamler.	"	"
314	7 27— 6 16	....	"	" 8	" 10	13.15	18.03	13.84	76.78	C. H. Stone...	"	"
315	12 37—15 23½	....	Klein Wanzlebener	" 11	" 14	12.44	15.99	13.09	81.88	G. & R. Mittman.	"	"
316	6 24—15 19	12	"	" 11	" 15	12.56	16.00*	13.22	82.62	Milton Rice...	"	"
317	6 38—26 31	30	"	" 8	" 14	13.18	17.48	13.87	79.36	Fred Mittman.	"	"
318	6 24— 6 15	....	"	" 20	" 15	10.18	15.85	10.71	67.55	Ed Barnhardt.	"	"
319	6 28—18 22	14	"	" 27	" 15	11.36	17.03	11.96	70.23	S. Van Zandt..	"	"
320	6 33— 8 22	....	"	" 1	" 15	9.14	14.95	9.62	64.32	"	"	"
321	7 3— 2 2½	18	"	" 14	" 14	12.03	17.48	12.66	72.43	J. A. Pyeatt. . .	"	"
322	6 15—12 13	16	Vilmorin No. II. . .	" 1	" 10	9.84	15.85	10.36	65.35	John Barnard.	"	"
323	6 30—17 21	....	Vilmorin No. I. . . .	" 15	" 8	10.50	15.64	11.05	70.64	A. Strake. ....	"	"
324	6 29—19 25	....	Klein Wanzl. . . . .	" 10	" 8	11.99	17.02	12.62	74.15	M. Schaab. ....	"	"
325	6 . . . . .	....	Vilmorin No. I. . . .	" 18	" 7	12.06	17.31	12.69	73.32	Wm. Albrecht.	"	"
326	6 40—20 31	....	Klein Wanzl. . . . .	" 11	" 8	11.06	16.17	11.64	72.00	C. Camehl. ....	"	"
327	6 36—21 26	....	Vilmorin No. I. . . .	" 16	.....	10.18	15.48	10.71	69.18	W. L. Fischer.	"	"
328	6 37—23 29	....	"	" 31	Oct. 8	11.71	17.31	12.32	71.18	D. W. Roberts.	"	"
329	7 20— 9 18	31	"	" 7	" 14	13.63	17.39	14.33	82.42	M. D. Manlove	"	"
330	6 19—10 15	....	"	" 18	" 14	13.05	17.39	13.74	79.02	R. H. McCampbell.	"	"
331	6 26—11 18	....	"	" 20	" 14	12.54	18.07	13.20	73.06	T. J. Fowler . .	Wrayville	"
332	6 22—16 18	....	"	" 18	" 7	12.22	16.70	12.86	77.02	Wm. Albrecht.	Muscatine	"
333	6 21—15 19	24	"	" 14	" 14	15.01	19.35	15.81	81.69	C. Kindler, Sr.	"	"
334	6 38—11 22	....	French . . . . .	" 1	" 14	10.80	15.94	11.37	71.33	S. N. Grosjean	"	"
335	6 20— 9 14	21	Vilmorin No. II. . .	" 7	" 14	12.98	16.48	13.66	82.91	M. D. Manlove	"	"
336	6 35—12 17	21	Klein Wanzl. . . . .	" 7	" 14	11.97	17.54	12.60	71.84	Phil Murphy. . .	"	"
337	6 34—18 21	19	Vilmorin No. I. . . .	June 15	" 13	13.15	16.87	13.84	82.08	Jos. Lorber . . .	"	"
338	6 19—15 16½	26	Klein Wanzl. . . . .	May 17	" 13	14.70	19.14	15.47	80.85	Henry Timm. . .	"	"
339	6 31—14 23½	18	Vilmorin No. I. . . .	" 1	" 14	10.64	14.58	11.20	76.81	Asa Sheppard.	Fruitland	"
340	6 20—13 16½	20	Klein Wanzl. . . . .	" 7	.....	12.70	15.96	13.36	83.72	T. H. Drake . . .	"	"
341	6 30— 9 17	20	Vilmorin No. I. . . .	" 7	.....	13.19	16.91	13.89	82.16	"	"	"
342	6 22—11 17	20	Vilmorin No. II. . .	" 7	.....	13.86	17.48	14.59	83.49	"	"	"
343	6 40—19 30	....	Vilmorin No. I. . . .	" 1	Oct. 14	11.66	15.52	12.27	79.06	Wm. Happer. . .	Muscatine. . . .	"
344	6 25— 8 14	....	"	" 25	" 9	11.50	15.76	12.10	76.78	J. Leutzinger..	"	"
345	6 19—11 16	20	"	April 28	" 12	15.10	19.39	15.89	81.94	B. B. Rankin. . .	"	"

\* Assumed.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample	Weight of Beets after trimming.		Estimated yield of Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent	IN THE EX-PRESSED JUICE			GROWN BY	P O ADDRESS	COUNTY
		Largest and smallest. Ounces.	Mean. Ounces.			Planting	Harvesting.		Solids (Brix) Per cent	Sugar (by polarization).	Purity Coefficient			
346	632	27	29	...	Klein Wanzl	May 8	Oct. 20	13.62	18.26	14.34	78.55	J. Starke	Muscatine	Muscatine.
347	628	9	21	...	"	" 24	" 22	14.94	19.16	15.72	82.08	H. Niemeier	"	"
348	631	16	24	14	Vilmorin No. I	" 20	" 15	13.47	18.49	14.62	79.09	Elisha Beatty	"	"
349	625	15	20	18	Klein Wanzl	" 25	" 12	14.77	19.16	15.54	81.14	Jas. Cross	"	"
350	620	11	14	20	"	" 7	" 14	15.84	19.61	16.67	85.00	Jas. Adams	Fruitland	"
351	624	13	19	...	Vilmorin No. II	" 24	" 22	16.99	22.00*	17.88	81.28	H. Niemeier	Muscatine	"
352	624	9	17	...	Vilmorin No. I	April 30	" 16	14.66	19.39	15.43	79.61	G. H. Stiles	"	"
353	627	9	17	21	"	May 7	" 16	13.24	18.04	13.94	77.29	H. R. Smull	"	"
354	630	14	24	30+	Vilmorin No II	" 15	" 17	13.57	18.49	14.28	77.25	W. H. Fayle	"	"
355	634	20	26	29	Vilmorin No. I	" 6	" 16	11.65	17.24	12.26	71.11	Claus Lemp	"	"
356	625	12	17	13	"	" 1	" 16	11.72	16.79	12.33	72.10	B. F. Nichols	Nichols Station	"
357	626	17	21	30+	"	" 12	" 15	11.35	15.87	11.95	75.29	J. H. Cole	Muscatine	"
358	622	8	12	16	Vilmorin No. II	"	" 15	12.60	17.05	13.26	77.78	A. Kirchner	Sweetland	"
359	623	16	19 1/2	25	Vilmorin No. I	" 12	" 15	13.57	18.41	14.39	76.41	Fred. Daut	Muscatine	"
360	626	16	19	...	"	" 20	" 15	12.09	17.19	12.72	73.82	S. Humphreys	"	"
361	623	16	19	...	"	" 20	" 14	11.82	17.42	12.44	71.42	T. J. Fowler	Wrayville	"
362	629	13	20	...	"	"	"	11.41	16.28	12.03	73.89	J. E. Hoopes	Muscatine	"
363	618	10	13	7	Klein-Wanzl	" 12	" 15	11.82	16.14	12.44	77.08	S. B. Landis	"	"
364	628	11	19	21	"	" 18	" 15	13.94	19.18	14.67	76.91	S Sennett	"	"
365	664	7	25	20	"	" 7	" 15	11.28	15.15	11.87	78.45	Niles Sherfey	"	"
366	642	19	27	19	Vilmorin No. I	" 19	" 17	15.62	19.61	16.44	83.82	Wm Fuhlman	Illinois City	State of Illinois.

367	6 26—16 20	....	Klein-Wanzl.....	May 16	.....	12.91	18.14	13.59	74.93	W. L. Fischer.	Muscatine ....	Muscatine.
Mean	for Lot II,	Mus	catine Beets.....			12.29	.....	.....	76.65			
368	5 33—16 23	20	Vilmorin No. II..	" 10	Oct. 28	13.31	18.46	14.01	75.92	Asa Sheppard.	Fruitland ....	Muscatine.
369	6 14— 7 10	9	"	" 1	" 28	15.22	19.36	16.02	82.73	M. D. Manlove.	Muscatine ....	"
370	5 17—11 15	16	"	" 12	" 28	15.26	20.38	16.06	78.79	C. B. Vail.....	"	"
371	8 21— 5 13½	14	Klein-Wanzl.....	" 12	" 29	14.85	19.93	15.63	78.45	J. H. Cole.....	"	"
372	6 26—16 21	18	Vilmorin No. I...	" 8	" 28	15.40	19.23	16.21	84.28	Jas. Adams...	Fruitland ....	"
373	6 31—19 25½	26	"	" 20	" 28	12.92	16.97	13.60	80.15	G. W. Mentink	Muscatine ....	"
374	6 24—12 18	17	Vilmorin No. II..	" 8	" 29	12.09	16.91	12.72	75.22	S. G. Stein....	"	"
375	6 18—10 15	.....	Vilmorin No. I...	"	" 29	13.55	18.03	14.26	79.11	Wm. Happer..	"	"
376	6 28—20 24½	17	"	" 1	" 29	13.52	18.71	14.23	76.08	Geo. Ewing...	"	"
377	6 21—14 17	19	"	" 15	" 29	15.63	19.83	16.45	82.94	Elisha Beatty..	"	"
378	6 23—16 18	24	Vilmorin No. II..	" 1	" 28	15.15	20.38	15.95	78.25	Wm. Happer..	"	"
379	6 40—18 25	22	Vilmorin No. I...	April 27	" 24	15.92	20.38	16.76	82.23	B. B. Rankin..	"	"
380	6 30—19 22	20	"	May 1	" 27	15.09	20.16	15.88	78.75	Jas. Cross....	"	"
381	6 23—20 21	17	Klein Wanzl.....	" 1	" 29	13.62	18.59	14.34	77.16	Geo. Ewing...	"	"
382	6 12— 7 10	18	Vilmorin No. I...	" 4	" 28	15.98	20.24	16.82	83.10	T. H. Drake...	Fruitland ....	"
383	7 15—11 12½	7	Vilmorin No. II..	" 10	" 28	16.12	21.79	16.97	77.87	Milton Rice...	Muscatine ....	"
384	6 20—11 16	22	"	April 24	" 24	16.53	21.57	17.40	80.66	B. B. Rankin..	"	"
385	6 16—10 13	18	Klein-Wanzl.....	May 4	" 28	15.64	19.57	16.46	84.10	T. H. Drake...	Fruitland ....	"
386	6 29—16 20½	18	Vilmorin No. II..	" 4	" 28	15.44	19.23	16.24	84.44	"	"	"
387	6 16—11 14	13	Vilmorin No. I...	" 11	" 28	16.08	19.68	16.93	86.03	Geo. Mittman	Muscatine ....	"
388	6 41—21 30	22	Klein-Wanzl.....	April 28	" 24	14.68	19.68	15.45	78.54	B. B. Rankin..	"	"
389	6 17—10 14	15	Vilmorin No. I...	May 8	" 29	13.70	18.78	14.42	76.81	S. G. Stein....	"	"
390	6 32—11 21	19	Gov. Seed.....	" 18	" 30	12.60	17.00	13.26	78.01	R. H. McCampbell..	"	"
391	6 28—16 21½	20	Vilmorin No. II..	June 1	" 28	13.09	18.36	13.78	75.07	J. W. Hoopes..	"	"
392	6 41—16 28	25	Vilmorin No. I...	May 11	" 28	13.55	17.91	14.26	79.64	G. and R. Mittman	"	"
393	6 37—14 23	29	"	" 11	" 28	15.59	20.60	16.41	79.64	W. H. Fayle..	"	"
394	6 32—21 27½	17	"	May 24	" 28	13.99	19.20	14.72	76.69	H. Niemeier..	"	"
395	6 33—15 24½	19	Vilmorin No. II..	May 18	" 30	13.62	18.30	14.36	78.49	R. H. McCampbell..	"	"
396	6 14—10 12	.....	Klein-Wanzl.....	"	" 24	.....	17.39	.....	.....	J. A. and L. Hoopes	"	"
397	6 30—12 22½	9	Vilmorin No. I...	June 1	" 28	15.81	20.99	16.64	79.26	John Starke...	"	"

\* Assumed.

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.		Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. Tons.	VARIETY AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY.	P. O. ADDRESS.	COUNTY.	
	Largest and smallest. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.				Purity coefficient.
398	5	48—26	41	19	Lane's Improved..	May	18	Oct. 30	11.38	15.79	11.98	75.70	R. H. McCampbell..	Muscatine....	Muscatine.
399	6	16—12	14	7	Vilmorin No. 1...	"	10	" 28	13.86	19.65	14.59	74.27	Milton Rice...	" .....	"
400	6	20—15	17	13	Vilmorin No. II..	"	1	" 28	11.48	16.71	12.08	72.29	J. Barnard ...	" .....	"
401	6	7—5	6	5	Klein-Wanzl.....	June	1	" 28	13.46	18.53	14.17	76.49	W. W. Gregor.	" .....	"
402	6	19—8	11	7	Vilmorin No. 1...	May	15	" 29	14.42	18.45	15.18	82.31	B. F. Nichols..	Nichols Station	"
403	6	26—16	20	17	" .....	"	18	" 28	12.92	17.31	13.60	78.58	Wm. Albrecht.	Muscatine ....	"
404	6	34—23	27	24	Klein-Wanzl.....	"	20	" 29	10.86	16.63	11.43	68.72	S. Humphreys.	" .....	"
405	6	25—14	19	19	Vilmorin No. 1...	"	1	" 28	15.29	20.25	16.09	79.44	M. M. Heinley (B)	Fairport .....	"
406	6	13—7	10	11	" .....	"	30	" 29	15.52	20.16	16.33	81.23	Levi S. Moss..	Muscatine.....	"
407	6	26—21	19	18	" .....	"	12	" 29	15.17	19.43	15.97	82.18	H. V. Howard.	" .....	"
408	5	24—18	21	22	" .....	"	10	" 30	13.62	18.30	14.34	78.38	Eli Selman....	" .....	"
409	7	23—12	17	17	" .....	"	1	" 28	15.61	20.55	16.43	79.94	M. M. Heinley (A)	Fairport .....	"
410	6	15—5	8	11	Vilmorin No. II..	"	30	" 29	14.37	19.66	15.12	76.94	Levi S. Moss..	Muscatine.....	"
411	6	23—11	19	7	" .....	"	10	" 28	14.14	19.22	14.88	77.45	Hahn Bros. & Co	" .....	"
412	6	13—8	11	7	Vilmorin No. 1...	"	12	" 28	14.96	19.66	15.75	80.09	S. B. Landis..	" .....	"
413	7	13—6	10	11	Klein-Wanzl.....	"	30	" 29	14.91	20.55	15.69	76.34	Levi S. Moss..	" .....	"
414	6	30—15	19 1/2	20	" .....	"	15	.....	13.50	17.77	14.21	80.00	J. B. Lindle..	" .....	"
415	6	29—18	23 3/4	20	French.....	"	15	.....	15.22	19.58	16.02	81.81	" .....	" .....	"
416	4	41—16	25	20	" .....	"	15	.....	14.06	18.68	14.80	78.25	" .....	" .....	"
417	4	30—9	16	20	Vilmorin No. I...	"	15	.....	14.38	18.62	15.13	81.29	" .....	" .....	"
418	6	24—12	18	20	Vilmorin No. II..	"	15	.....	14.12	18.62	14.86	79.83	" .....	" .....	"

419	6 19—15 17½	16	Vilmorin No. II..	May	7	Oct.	29	15.22	19.35	16.02	82.78	Phil Murphy..	Muscatine....	Muscatine.
420	6 24—10 16	11	Vilmorin No. I...	"	14	"	29	14.96	19.52	15.75	80.87	C. H. Stone...	"	"
421	6 22—13 17	10	Klein-Wanzl.....	"	18	"	30	18.00	23.71	18.95	79.93	S. T. Sennett..	"	"
422	6 45—18 30	14	Vilmorin No. I...	June	1	Nov.	2	12.92	17.42	13.60	78.09	Jas. Briar....	"	"
423	6 23—10 14½	14	Vilmorin No. II..	May	1	Oct.	29	15.23	20.80	16.03	77.05	Wm. Hoffman..	"	"
424	6 24— 9 16	11	Vilmorin No. I...	"	15	"	26	13.64	19.01	14.36	75.56	H. Breckenridge	"	"
425	6 17— 10 13	12	Klein-Wanzl.....	"	1	"	28	14.96	20.57	15.74	76.50	F. P. Hoopes..	"	"
426	7 30—18 27	24	Vilmorin No. II..	"	8	"	29	15.26	20.60	16.06	77.95	C. Kindler, Sr.	"	"
427	6 19—11 14½	14	Vilmorin No. I...	"	1	"	29	15.37	20.83	16.18	77.66	Wm. Hoffman..	"	"
428	6 12— 8 10	11	Klein-Wanzl.....	Ap'l	28	"	28	16.79	21.93	17.67	80.57	C. S. Bird.....	"	"
429	6 23—13 18	19	Vilmorin No. II..	May	8	"	26	16.62	21.49	17.49	81.39	Geo. Weiman..	"	"
430	6 18—10 14	14	Klein-Wanzl.....	"	1	"	29	14.88	19.90	15.45	77.67	Wm. Hoffman..	"	"
431	6 17— 9 14	21	Vilmorin No. I...	"	30	"	26	14.68	19.23	15.45	80.37	G. F. Funck..	"	"
432	6 12— 6 8	10	"	"	6	"	27	16.77	21.79	17.65	81.00	Fred Daut....	"	"
433	6 20—14 16	19	"	"	8	"	26	18.70	23.97	19.68	82.12	Geo. Weiman..	"	"
434	6 10— 5 7	14	Klein-Wanzl.....	"	3	"	29	16.90	22.46	17.79	79.20	W. H. Hoopes & Sons	"	"
435	6 8— 3 6	14	Vilmorin No. II..	"	3	"	29	16.79	22.00	17.67	80.31	"	"	"
436	6 20—14 16½	14	Vilmorin No. I...	"	3	"	29	15.48	20.92	16.29	77.85	"	"	"
437	6 24—10 19	18	"	"	4	"	30	13.84	18.95	14.36	75.80	Claus Koll ...	"	"
438	6 21— 7 14	12	"	"	8	Nov.	2	13.91	19.39	14.64	75.53	G. H. Kirkpatrick	"	"
439	6 23— 8 18	17	"	"	8	Oct.	29	14.41	19.61	15.17	77.39	G. Stein.....	"	"
440	6 32—15 23	18	Vilmorin No. II..	"	12	Nov.	6	13.37	18.72	14.07	75.18	C. Camehl.....	"	"
441	7 19— 8 12	8	Vilmorin No. I...	"	11	Oct.	26	15.13	20.80	15.92	76.53	T. Middleton..	"	"
442	6 25—14 17	10	"	"	18	"	30	12.47	17.42	13.12	75.33	S. T. Sennett..	"	"
443	6 47—23 31	14	Vilmorin No. II..	June	1	Nov.	2	17.55	23.00	18.47	80.30	Jas. Briar....	"	"
444	6 24—14 21	19	"	May	11	Oct.	28	13.98	17.65	14.71	83.37	Geo. Mittman..	"	"
445	6 24—11 17	17	Vilmorin No. I...	"	11	"	28	14.34	16.74	15.09	90.15	G. & R. Mittman	"	"
446	6 13—10 11	9	"	"	1	"	30	15.14	20.57	15.90	77.28	J. E. Hoopes & Co.	"	"
447	6 23—12 17	13	"	"	6	"	29	13.69	18.78	14.41	76.75	W. L. Fisher..	"	"
448	6 12— 6 9	6	"	"	18	"	28	14.96	19.29	15.75	81.63	Hahn Bros. & Co	"	"
449	6 21—15 18½	15	Vilmorin No. II..	"	15	"	29	16.22	20.86	17.07	81.83	Wm. Bush.....	"	"
450	6 18—14 15½	19	Klein-Wanzl.....	"	7	"	30	15.68	19.29	16.51	85.59	G. W. Billings	"	"
451	7 9— 7 8	9	Vilmorin No. I...	"	7	"	30	16.08	19.29	16.93	87.76	"	"	"
452	6 27—14 21½	19	Klein-Wanzl.....	"	15	"	29	10.77	15.88	11.34	71.41	C. Camehl.....	"	"
453	6 36—22 27	17	Vilmorin No. I...	"	16	"	28	14.75	20.41	15.52	76.07	C. Leitendecker	"	"
454	6 12— 7 9	9	Klein-Wanzl.....	"	1	"	30	15.14	20.19	15.93	78.88	J. E. Hoopes & Co.	"	"



## ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891.

Sample No.	Number of Beets in sample		Weight of Beets after trimming.	Estimated yield of trimmed Beets per acre. Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.	
	Largest and smallest. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polarization). Per cent.				Purity Coefficient.
455	6 29	—14	19	20	Vilmorin No. I...	April	27	Oct. 27	15.57	20.86	16.39	78.56	J. Wackerlin..	Muscatine ....	Muscatine.
456	6 16	—13	15	10	Klein-Wanzl.....	May	6	" 27	14.19	19.80	14.93	75.43	Fred. Daut....	" .....	"
457	6 18	—9	15	7	Vilmorin No. I...	"	10	" 26	14.02	21.13	14.76	69.88	R. T. Hummel	" .....	"
458	6 19	—13	16½	9	" .....	"	20	" 29	14.85	20.47	15.63	76.34	A. J. Nester ..	" .....	"
459	6 31	—15	20	23	Vilmorin No. II..	"	12	" 27	14.76	20.47	15.53	75.85	J. H. Cole.....	" .....	"
460	6 16	—14	15	10	" .....	"	6	" 27	13.89	18.90	14.62	77.38	Fred. Daut....	" .....	"
461	6 20	—11	15	11	Vilmorin No. I...	"	6	" 29	14.92	19.35	15.70	81.11	Niles Sherfey .	" .....	"
462	6 30	—17	24	8	Vilmorin No. II..	"	11	" 26	14.82	19.29	15.60	80.84	T. Middleton..	" .....	"
463	6 25	—9	15	19	" .....	June	10	" 26	14.29	19.80	15.04	76.00	Jas. B. Pemble	Wapello .....	Louisa.
464	6 29	—20	24	18	Klein-Wanzl.....	"	15	" 24	13.35	19.26	14.05	72.97	Wm. McGill...	Grand View...	"
<b>Mean.</b>	for Lot III.		Mus		catine Beets .....				14.64			78.84			
465	6 35	—14	22	19	Vilmorin.....	May	7	Oct. 15	11.37	15.47	11.97	77.38	J. M. Lehman.	Cumberland ..	Cass.
466	6 54	—19	35	17	Klein-Wanzl.....	"	8	" 15	9.62	14.31	10.12	70.70	" .....	" .....	"
<b>Mean.</b>									10.50			74.04			
467	3 37	—24	30	22	German.....	May	7	Oct. 12	12.25	16.86	12.89	76.46	W. H. Shoop..	Carlisle.....	Warren.
468	3 19	—16	17½	14	French.....	"	7	" 12	12.72	16.86	13.38	79.38	" .....	" .....	"

469	3	35—20	28	20	German.....	May 20	Oct. 12	9.62	14.76	10.12	68.54	W. H. Shoop..	Carlisle.....	Warren.
Mean.								11.53			74.79			
470	1		34		Klein-Wanzl.....	May 20	Oct. 4	7.65	12.38	8.05	65.00	A. W. Swalm..	Oskaloosa ...	Mahaska.
471	7	16—10	12½	11		May 12	Nov. 10	14.02	18.19	14.76	81.31	Jno. Klein...	Keota.....	Keokuk.
472	6	32—6	20	11		" 12	" 10	12.77	17.71	13.44	75.90	"	"	"
473	4	58—24	43	24		" 1	Sept. 9	7.36	13.07	7.75	59.29	Jno. Morrison.	Hedrick.....	"
474	2	58—54	56	24		" 1	" 9	4.87	12.50	5.13	41.04	"	"	"
475	6	80—42	71	24	Red Beets.....	" 1	" 9	4.84	10 10	5.09	50.39	"	"	"
476	6	44—24	33	24		" 1	Oct. 16	9.33	13.90	9.82	70.62	"	"	"
Mean.								8.87			63.09			
477	6	15—10	12	26	Klein-Wanzl.....	May 1	Oct. 12	6.63	12.62	6.98	55.32	C. C. Platter..	Red Oak.....	Montgomery.
478	6	37—8	19½	26	"	" 1	" 12	8.10	13.09	8.52	65.12	"	"	"
479	6	13—7	10	25	Vilmorin's Imp...	" 1	" 12	9.06	14.03	9.53	67.89	"	"	"
480	5	34—10	22	25	"	" 1	" 12	8.51	13.09	8.96	68.48	"	"	"
481	6	16—8	11	27	"	" 10	" 14	9.09	13.09	9.57	74.78	P. Erickson..	"	"
482	6	48—7	24	27	"	" 10	" 14	8.89	13.79	9.36	67.91	"	"	"
483	6	40—6	24	28	Klein-Wanzl.....	" 10	" 14	8.98	13.79	9.45	68.48	"	"	"
484	6	16—13	14½	28	"	" 10	" 14	9.52	15.19	10.02	65.94	"	"	"
485	6	19—12	15	28	Vilmorin's Imp...	" 15	" 22	11.26	16.97	11.85	69.83	"	"	"
486	6		21		"	" 12	" 26	11.69	16.54	12.30	74.23	E. M. Murphy.	"	"
487	6	16—6	10½					10.09	15.01	10.62	70.74	M. M. Stoddard	Villisca.....	"
Mean.								9.26			68.97			
488	6	48—22	33½	23	Klein-Wanzl.....	April 27	Oct. 20	11.23	16.57	11.82	71.33	Jos. Beath....	Corning.....	Adams.
489	6	27—12	18	23	"	" 27	" 20	12.17	17.48	12.81	73.29	"	"	"
490	10	14—4	9	26	"	May 11	" 22	12.77	18.62	13.44	72.19	"	"	"
491	7	11—4	8	26	"	" 11	" 22	13.04	18.14	13.73	75.71	"	"	"
492	6	58—14	34		"	" 11	" 22	11.76	17.68	12.38	70.03	"	"	"
Mean.								12.20			72.61			

ANALYSES OF SUGAR BEETS GROWN IN IOWA, 1891—CONTINUED.

Sample No.	Number of Beets in sample.			Weight of Beets after trimming.	Estimated yield of trim'd Beets per acre. —Tons.	VARIETY, AS REPORTED.	DATE OF		IN THE BEET. Sugar (calculated). Per cent.	IN THE EX-PRESSED JUICE.			GROWN BY	P. O. ADDRESS.	COUNTY.
	Largest and small-est. Ounces.	Mean. Ounces.					Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polariza-tion). Per cent.	Purity Coefficient.			
493	2	22—18	20	.....	.....	.....	.....	.....	10.88	16.11	11.45	71.07	J. C. Russell..	Creston.....	Union.
494	4	27—18	23	.....	.....	.....	.....	.....	13.44	18.65	14.15	76.02	P. L. Harsh...	" .....	" .....
495	4	25—13	20	.....	White French....	May 27	Sept. 30	.....	13.49	18.84	14.20	75.39	Ezra Osborn...	" .....	" .....
496	4	30—19	24	.....	.....	.....	.....	.....	11.30	17.03	11.89	69.82	J. B. Peterson	" .....	" .....
497	4	30—18	24	.....	.....	.....	.....	.....	11.07	16.17	11.65	72.04	" .....	" .....	" .....
Mean.	...	.....	.....	.....	.....	.....	.....	.....	12.04	.....	.....	72.87	.....	.....	.....
498	10	68—28	50	.....	.....	.....	.....	.....	9.28	14.00	9.77	69.77	S. A. Thomas.	Bingham .....	Page.
499	6	29—20	23	.....	.....	.....	.....	.....	10.20	13.90	10.74	77.25	John Boyer ...	Braddyville...	" .....
Mean.	...	.....	.....	.....	.....	.....	.....	.....	9.74	.....	.....	73.01	.....	.....	.....
500	6	46—26	34½	30+	White.....	May 11	Sept. 16	.....	12.06	16.45	12.57	76.40	J. W. Hills....	Siam .....	Taylor.
501	5	27—20	23	28	" .....	" 11	" 16	.....	13.90	18.40	14.62	74.03	" .....	" .....	" .....
Mean.	...	.....	.....	.....	.....	.....	.....	.....	12.98	.....	.....	74.88	.....	.....	.....
502	6	66—49	60	.....	.....	.....	.....	.....	7.51	14.22	7.90	55.58	E. Bevins....	Leon .....	Decatur.

In the foregoing table the results are arranged by counties, commencing with the northernmost tier and proceeding by tiers southward.

The exhibit plainly shows that in a season like that of 1891, beets of good quality for sugar production can be grown in certain parts of Iowa.

The average results for different counties show in some instances wide differences in quality of the beets. But wide differences are also found between the beets grown on different farms in the same county, and even between those from different plats or fields of the same farm. Some of these differences may be, probably are, due to the soil itself, but without doubt very many are due to the *modes of preparing the soil and cultivating the crop*. [Regarding these subjects see Bulletin 12]. Therefore it is not safe to assume that the relative adaptability of the different counties to the beet sugar industry is truly, or even approximately, represented by the results of a single year's investigation—and this is of course especially true of those counties from which but few samples were received.

It is true the results for the state *as a whole* do not indicate as high an average quality of beet as is reported from some states in the drier regions further west and northwest; but on the other hand the average yield of beets per acre is in Iowa very much larger than is possible in those states, without irrigation. Therefore, even should this indication regarding quality be in future verified, (it is now *only* an indication), that difference would probably be more than balanced by the superior yield per acre possible with the soil and climate of Iowa. It is generally asserted, and doubtless with truth, that for profitable sugar manufacture there is required an average quality of beet represented by a sugar content of at least 12 per cent (on the beet) and a purity-coefficient of nearly 80, or upwards. But quality of beet is not all. Plainly, the *yield of beets per acre* is an equally important factor in determining profit.

(This report to be concluded in next bulletin).