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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.			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.	Weight of Beets after trimming.			Planting.	Harvesting.		Solids (Brix). Per cent.	Sugar (by polarization). Per cent.	Purity Coefficient.			
1	6 21—8 14	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	7 11½	.....	Vilmorin	"	10	" 31	13.04	18.39	13.73	74.87	"	"	"
Mean.								12.89			74.26			
3	12 31—22 25	25	.....	Vilmorin	May	20	Nov. 4	13.69	19.12	14.41	75.39	S. G. Tyrrell	Riceville	Mitchell.
4	10 31—17 21½	21½	11	Klein Wanzlebener	"	15	Oct. 15	10.97	15.42	11.55	74.89	A. S. Thornburg	Orchard	"
5	6 46—2 14	2 14	11	"	"	18	" 19	11.97	17.48	12.60	72.09	John Hartogh	New Haven	"
6	6 17—14 15½	15½	11	"	"	18	" 19	11.76	17.48	12.38	70.83	"	"	"
Mean.								12.10			73.30			
7	6 29—17 22	22	13	French	May	12	Oct. 10	14.72	20.57	15.49	75.34	Chas. Barnard	Waukon	Allamakee.
8	4 64—46 54	54	13	German	"	12	" 10	11.27	16.97	11.87	69.95	"	"	"
9	4 47—24 37	37	20	French	"	13	" 8	13.63	18.38	14.34	78.25	"	"	"
10	6 48—19 31	31	24	German	"	13	" 8	14.94	19.46	15.72	80.81	"	"	"
11	7 50—17 33	33	30+	French	"	1	" 8	11.20	16.05	11.79	73.45	"	"	"
12	5 46—12 25½	25½	30+	German	"	1	" 8	12.84	18.10	13.52	74.70	"	"	"
13	7 80—17 28	28	27	"Improved"	"	13	" 20	11.28	17.19	11.87	69.05	"	"	"

14	6.84	28	49	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	28	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	16	1/2	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	12	1/2	"	" 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	22	1/2				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	27	1/2		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 RE-PORTED.	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.			
31	641	2133½	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+		"	June 1	" 12	12.42	18.00	13.07	72.62	"	"	"
Mean.								11.80			71.66			
33	651	2439	14			May 1	Oct. 4	9.50	15.28	10.00	65.42	Wm. C. Ross..	Ida Grove....	Ida.
34	680	4760	16			" 15	Nov. 7	9.12	14.84	9.59	64.45	H. F. Meyer..	Odebolt	Sac.
35	642	1125	16			" 15	" 7	10.23	15.53	10.76	69.28	"	"	"
36	630	1925	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+		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		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		German & French	" 10	" 22	11.57	17.87	12.18	68.15	T. W. Powers.	"	"
43	1233	1826	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	834—18	24½	30+	German & French.	April 15	Oct. 10	11.93	17.49	12.55	71.77	A. Chantland..	Badger	Webster.
46	1274—19	36½	20	German	May 15	" 22	9.39	14.72	9.87	67.03	S Watland, lot 1	"	"
47	1272—16	45	25	French	" 15	" 22	9.00	13.85	9.47	68.41	" lot 2	"	"
48	1214—6	11	20	German & French.	" 20	" 14	9.82	14.83	10.33	69.63	J. T. Brown..	Barnum	"
49	1213—3	9	.....	.....	.....	.....	9.91	14.83	10.43	70.32	"	"	"
50	1260—19	33	27	German	May 1	Oct. 9	10.43	15.46	10.97	70.97	Ira Rickard...	Callender	"
51	1227—7	13	18	"	" 20	" 23	13.87	17.36	14.60	84.14	R. Hoff	"	"
52	1216—7	9½	15	French .....	.....	.....	13.70	16.91	14.42	85.30	"	"	"
53	1233—10	22	10	German	May 10	Oct. 13	10.29	15.21	10.83	71.19	Jno. Bakker..	Lehigh	"
54	1214—4	9	.....	" .....	" 15	" 12	9.19	14.79	9.67	65.36	J. W. Bennett.	Kalo	"
55	1245—26	33½	.....	.....	" 1	" 21	11.98	17.25	12.61	73.12	W. J. Hale...	"	"
56	1237—18	28½	23	.....	June 13	Nov. 4	11.28	16.80	11.87	70.66	Clark Fuller..	"	"
57	1232—12	20	14	French	May 1	Oct. 21	12.12	17.41	12.75	73.24	Wm. Pollock..	Clare	"
58	1220—8	13½	25	German	April 20	" 23	10.95	16.07	11.52	71.67	D. T. Trusty..	Ft. Dodge...	"
59	1226—8	16½	20	"	" 20	" 23	11.35	16.76	11.95	72.11	"	"	"
60	1241—17	30	.....	.....	.....	.....	12.47	17.48	13.12	75.06	S. Ruffe.....	Burnside	"
Mean.	.....	.....	.....	.....	.....	.....	11.04	.....	.....	72.23	.....	.....	.....
61	674—14	37½	.....	.....	.....	.....	11.33	16.85	11.93	70.80	W. G. Gilman.	Jewell	Hamilton.
62	684—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	655—11	30	.....	.....	.....	.....	9.36	15.85	9.85	62.12	A. S. Desmarais	Grundy Center	Grundy.
64	915—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	1033—9	22	.....	" .....	" 15	" 15	12.17	17.71	12.81	72.34	"	"	"
69	442—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.				Purity Coefficient.
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 25 1/2	"			11.51	15.82	12.11	76.57	"	"	"
85	2	23-12 17 1/2	"			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 15 1/2 15	"	June 8	" 22	13.10	17.65	13.79	78.15	M. Kimble	"	"
90	6	26-16 22	"	" 10	" 23	12.47	18.02	13.13	72.87	M. Simon	"	"
90 1/2	6	10-4 7	"	" 18	" 23	8.57	16 28	9.02	55.43	"	"	"
91	6	30-16 21 1/2 20	"	" 15	" 24	12.60	17.56	13.26	75.53	"	"	"
92	6	18-11 13 1/2 15	"			14.37	19 82	15.12	76.31	"	"	"
93	6	35-17 26 1/2 22	"	June 20	Oct. 22	12.34	17.42	12.99	74.57	"	"	"
94	6	15-8 10 17	"	" 10	" 20	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	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 54 1/2	"	" 30	" 16	7.09	11.28	7.46	66.16	"	"	"
102	4	33-15 24 1/2	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	"	"	"

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		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	8.11½		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	4.9½	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	12.18½	23	Vilmorin	June	1 "	14.18	18.86	14.93	79.16	S. Cooper	"	"
154	6	34	12.18½	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	12.22½	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 "	20 10.59	17.05	11.25	65.98	Harry Conly	"	"
165	6	20	13.15	22	"	May	1 "	20 10.11	15.91	10.64	66.86	"	"	"
166	6	132	40.64	30	White Sugar	"	10 "	20 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.....	.....	DFarnsworth	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 polariza-tion). Per cent.				Purity coefficient.
198	531—1934	24	29	German	May	20	Oct. 22	9.78	14.67	10.29	70.13	Mrs. Jno. Ryan	Prairie City	Jasper
199	635—2229	29	30+	"	"	"	22	"	16.00	10.29	70.13	Chas. Walker	"	"
200	640—1928	30	30+	"	"	"	22	12.24	16.91	12.88	76.00	A. Prentice	"	"
201	637—2130	30	30+	"	"	"	18	12.60	18.82	13.26	70.47	A. F. Wilson	"	"
202	643—2837	30	28	"	"	"	22	12.07	17.68	12.70	71.84	W. K. Blain	"	"
203	638—1525	25	30+	"	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+	"	"	"	22	9.53	15.22	10.03	65.88	S. Johnson	"	"
206	664—3643	43	19	"	"	"	22	10.72	15.76	11.28	71.57	I. Bruner	"	"
207	623—917	21	21	"	"	"	18	10.62	17.13	11.18	65.20	J. Timmons Sr.	"	"
208	672—3853	29	29	"	"	"	15	9.08	14.61	9.55	65.34	A. J. Wiggins	"	"
209	664—2546	30+	30+	"	"	"	15	10.14	15.45	10.67	69.04	Mrs W. Wagner	Fairmount	"
210	628—1823	30	30	"	"	"	19	10.67	15.99	11.12	69.54	J. Smith	Prairie City	"
211	624—1018	22	22	"	"	"	20	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	41	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			

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215	6 52—19 36	27	May 15	Oct. 17	9.48	15.58	9.98	64.05	G. Roorda....	Pella	Marion.*
216	6 74—19 38	23	" 15	" 17	9.33	14.66	9.82	68.96	P. J. Koelman.	"	"
217	6 41—15 29	28	Klein Wanzl	" 24	" 22	10.42	14.88	10.96	73.89	J. E. Visser...	"	"
218	6 23—11 17	26	"	" 23	" 22	13.82	19.04	14.54	76.39	Wm. Visser...	"	"
219	6 40—24 30	30+	"	" 16	" 22	12.52	18.59	13.18	70.91	Jno. Visser...	"	"
220	6 34—21 28	.....	.....	.....	.....	14.41	20.26	15.17	74.90	G. Van der Weide	"	"
221	6 60—39 51	.....	German	June 12	" 19	12.19	18.02	12.83	71.21	A. De Penning	"	"
222	6 76—36 58	28	Vilmorin	April 20	" 24	10.23	16.23	10.77	67.89	T. Ver Beek..	"	"
223	5 72—60 67	.....	.....	.....	.....	8.69	14.61	9.15	65.37	L. Nells.....	"	"
224	6 45—22 33	.....	.....	.....	.....	8.62	16.07	9.07	56.47	G. Coum.....	"	"
225	6 58—39 49	30+	German	June 10	" 27	12.01	16.98	12.64	74.44	B. Goemaat...	"	"
226	6 84—32 47½	.....	.....	.....	.....	10.89	16.76	11.46	68.39	I. Van Niewaal	"	"
227	6 64—32 45½	.....	.....	.....	.....	9.05	14.92	9.52	63.78	T. Van Niewaal	"	"
228	6 76—44 52	30+	.....	.....	" 17	6.45	12.65	6.79	53.69	E. Ver Ploegh.	"	"
229	6 40—22 28	.....	.....	May 24	" 15	10.22	16.14	10.75	66.59	W. A. Chord..	"	"
230	6 37—19 26	21	.....	" 30	" 20	11.02	17.73	11.59	65.37	M. Verros....	"	"
231	6 57—19 33	20	Vilmorin	" 16	" 15	9.20	15.68	9.69	61.71	T. Verros....	"	"
232	6 50—28 38	28	German	" 20	" 24	8.50	15 13	8.94	59.12	R Johnson...	Percy	"
233	6 26—12 20	22	"	" 15	" 27	8.83	14.89	9 29	62.42	Jno. E. Roorda.	Durham	"
234	6 56—20 40	30+	"	" 15	Nov. 4	11.96	18.36	12.59	68.57	K. Verhey...	Pella	"
235	6 45—19 31	.....	Best German	" 10	" 4	12.49	18.81	13.15	68.32	C. Kooljman...	"	"
136	6 53—33 40	.....	German	" 8	" 4	11.59	18.13	12.20	67.29	H. Von Well..	"	"
237	6 63—39 57	.....	Best German	" 11	" 5	10.33	17.25	10.87	63.00	M. Van Goop..	"	"
238	6 52—32 38	.....	German	June 15	" 8	10.66	17.03	11.22	65.88	G. Van Der Veen	"	"
Mean.	.....	.....	.....	.....	.....	10.54	.....	.....	66.53	.....	.....	.....
239	6 19— 9 13½	.....	.....	.....	.....	12.29	17.99	12.94	71.94	J J. Sloan....	Brooklyn	Poweshiek.
240	6 38—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	3 24—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	3	26—15	21½	20		Klein-Wanzl	April 5	Oct. 5	12.51	16.10	13.17	81.82	G. W. Barclay	Rochester	Cedar.
244	4	38—21	26	20		"	" 5	" 5	12.96	17.69	13.64	77.12	"	"	"
Mean.									11.50			77.21			
245	2	34—24	29	30+		Desprez	May 28	Oct. 6	15.31	20.50	16.11	78.57	Wm. Kose	Davenport	Scott.
246	2	85—16	50½	18		"	" 15	" 11	9.71	14.00	10.22	72.98	J. R. Porter	Blue Grass	"
247	2	15—14	14½			"	" 20	" 24	13.43	18.78	14.14	75.31	B. H. Lage	Davenport	"
248	2	85—18	26½			"	" 28	" 24	10.20	17.19	10.72	62.40	W. Steinhoff	"	"
249	2	40—31	35½	22		"	April 15	" 20	16.33	21.73	17.19	79.10	Joachime Qualtzow	"	"
250	2	27—22	24½	19		Vilmorin	May 11	" 25	12.45	19.35	13.10	67.71	J. B. Kehoe	Long Grove	"
251	2			22		"	" 26	" 26	16.62	24.22	17.49	72.21	J. E. McConnell	Le Claire	"
Mean.									13.44			72.61			
252	6	23—5	14	22		Klein Wanzl	May 1	Oct. 5	12.26	16.08	12.90	80.23	W. H. Hoopes & Son	Muscatine	Muscatine.
253	6	24—10	15½	22		Vilmorin No 1*	" 1	" 5	12.21	17.00	12.85	75.59	"	"	"
254	6	21—11	15	22		Vilmorin No. II*	" 1	" 5	11.91	16.32	12.58	76.78	"	"	"
255	6	42—20	29½			Klein Wanzl	" 15	" 5	8.32	13.06	8.76	67.11	L. Hoopes	"	"
256	6	23—13	19			Vilmorin No I	" 7	" 5	12.58	15.85	13.24	83.55	G. W. Billings	"	"
257	6	24—13	18			Klein Wanzl	" 20	" 5	10.88	14.23	11.45	80.46	C. Kleist	"	"

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

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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 24½	....	Klein Wanzl.....	.....	"	1	"	5	11.29	15.23	11.88	78.00	M. D. Manlove	"	....	"
261	6 27—13 18½	....	"	.....	"	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 22½	....	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	13.63	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 20½	....	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 29½	....	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 15½	....	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 17½	....	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 20½	....	"	.....	"	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 small-est. Ounces.	Mean. Ounces.				Planting.	Harvesting.		Sugar (calculated). Per cent.	Solids (Brix). Per cent.	Sugar (by polariza-tion). Per cent.				Purity Coefficient.
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	"	"	"

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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 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.	Purity Coefficient			
346	6 32	27	29	...	Klein Wanzl	May	8 Oct. 20	13.62	18.26	14.34	78.55	J. Starke	Muscatine	Muscatine.
347	6 28	9	21	...	"	"	24 " 22	14.94	19.16	15.72	82.08	H. Niemeier	"	"
348	6 31	16	24	14	Vilmorin No. I	"	20 " 15	13.47	18.49	14.62	79.09	Elisha Beatty	"	"
349	6 25	15	20	18	Klein Wanzl	"	25 " 12	14.77	19.16	15.54	81.14	Jas. Cross	"	"
350	6 20	11	14	20	"	"	7 " 14	15.84	19.61	16.67	85.00	Jas. Adams	Fruitland	"
351	6 24	13	19	...	Vilmorin No. II	"	24 " 22	16.99	22.00*	17.88	81.28	H. Niemeier	Muscatine	"
352	6 24	9	17	...	Vilmorin No. I	April	30 " 16	14.66	19.39	15.43	79.61	G. H. Stiles	"	"
353	6 27	9	17	21	"	May	7 " 16	13.24	18.04	13.94	77.29	H. R. Smull	"	"
354	6 30	14	24	30	Vilmorin No II	"	15 " 17	13.57	18.49	14.28	77.25	W. H. Fayle	"	"
355	6 34	20	26	29	Vilmorin No. I	"	6 " 16	11.65	17.24	12.26	71.11	Claus Lemp	"	"
356	6 25	12	17	13	"	"	1 " 16	11.72	16.79	12.33	72.10	B. F. Nichols	Nichols Station	"
357	6 26	17	21	30	"	"	12 " 15	11.35	15.87	11.95	75.29	J. H. Cole	Muscatine	"
358	6 22	8	12	16	Vilmorin No. II	"	15 " 15	12.60	17.05	13.26	77.78	A. Kirchner	Sweetland	"
359	6 23	16	19 1/2	25	Vilmorin No. I	"	12 " 15	13.57	18.41	14.39	76.41	Fred. Daut	Muscatine	"
360	6 26	16	19	...	"	"	20 " 15	12.09	17.19	12.72	73.82	S. Humphreys	"	"
361	6 23	16	19	...	"	"	20 " 14	11.82	17.42	12.44	71.42	T. J. Fowler	Wrayville	"
362	6 29	13	20	...	"	"	" " 11	11.41	16.28	12.03	73.89	J. E. Hoopes	Muscatine	"
363	6 18	10	13	7	Klein-Wanzl	"	12 " 15	11.82	16.14	12.44	77.08	S. B. Landis	"	"
364	6 28	11	19	21	"	"	18 " 15	13.94	19.18	14.67	76.91	S Sennett	"	"
365	6 64	7	25	20	"	"	7 " 15	11.28	15.15	11.87	78.45	Niles Sherfey	"	"
366	6 42	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 RE-PORTED.	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 polariza-tion). 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. 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.					
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...	"		
Mean..	for Lot III.	Muscatine 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	"	"	"		
Mean..			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	"	"	"		

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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	18.16	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....	Slam	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).